



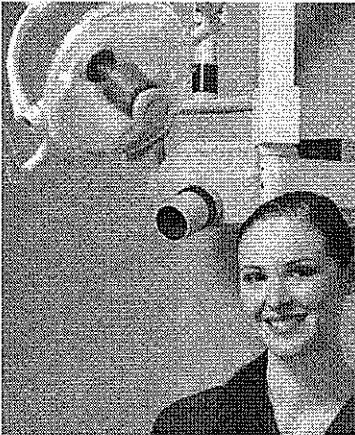
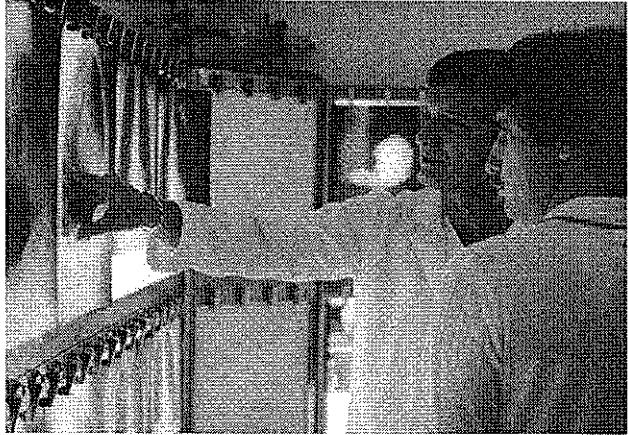
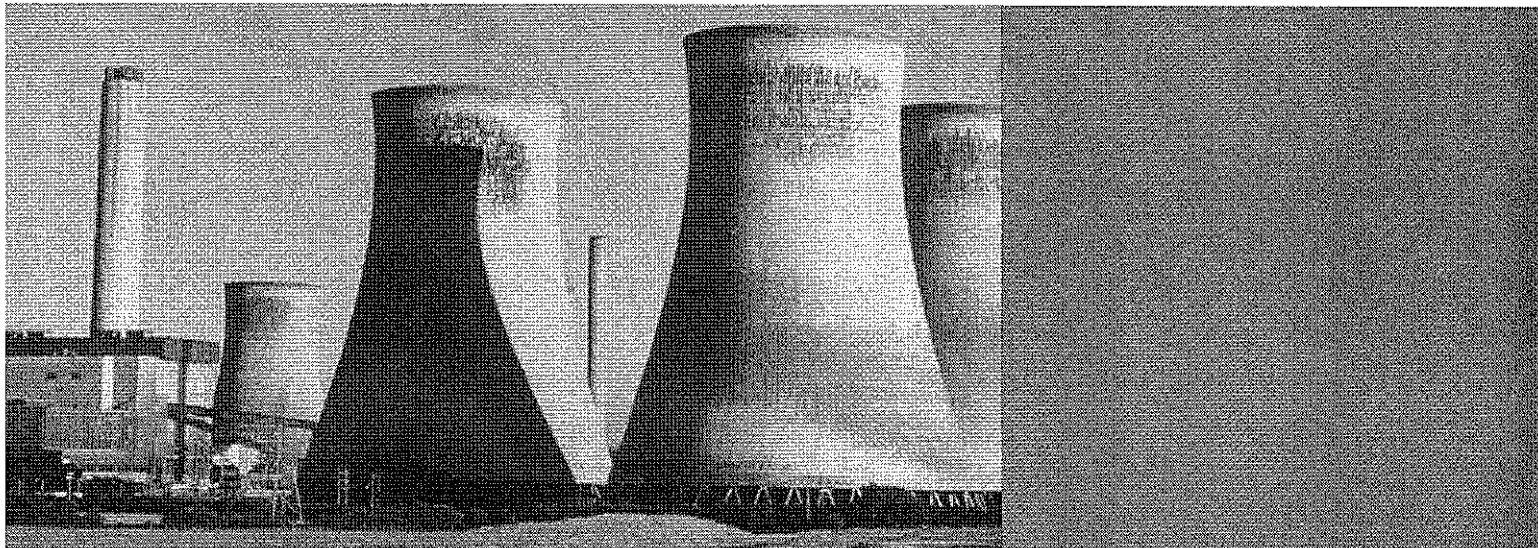
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# **2007 Report on Occupational Radiation Exposures in Canada**



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# **2007 Report on Occupational Radiation Exposures in Canada**

## **Abstract**

The report provides statistics on occupational radiation exposures for use by regulatory authorities, organizations and private individuals. Out of a total of 152,563 monitored workers, 2 annual doses exceeded the regulatory limit of 50 mSv in 2006. Out of 70 specified job categories 40 had a smaller annual average in 2006 than in 2005, 20 had a higher average, and 10 had the same average rounded to 0.01 mSv.

In the nuclear power sector, the annual averages which had increased in 2005 for all job classes, went down in 2006 for all but 2 job classes. The annual average dose for the entire NDR, which was unusually high at 0.42 mSv in 2005, went down to 0.31 mSv, which is typical for the period between 1996 and 2004.

## **Acknowledgments**

This document was prepared by Dr. W. Sont of the Occupational Radiation Hazards Division, Radiation Protection Bureau. Acknowledgments are extended to Mrs. C. Powell and Mr. B. Davies for their assistance.

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# Introduction

This series of reports provides statistics on occupational radiation exposures of monitored workers in Canada. The statistics are intended to assist regulatory authorities, organizations, and private individuals in comparing incurred occupational radiation exposures with national or provincial/territorial averages and trends in similar occupations. This report, as well as previous issues, can be found on the NDR's Web site<sup>(1)</sup> and downloaded, or obtained from the authors.

The information is based on the data in the National Dose Registry (NDR) maintained by the Radiation Protection Bureau of Health Canada<sup>(1)</sup>. The Registry is a centralized record-keeping system containing dose information on all monitored workers in Canada. It includes data submitted by nuclear power generating stations, Atomic Energy of Canada Ltd., uranium mines, and dosimeter processing companies.

Information for input into the NDR is received either via a direct link or by mail in computer readable form.

The report provides data on the two consecutive years prior to the year in which the data are extracted from the database. The data for the second (i.e. more recent) year will be close to complete at the time of data extraction. Some changes may still occur, for which the most frequent causes are: (1) a high dose to a dosimeter is judged to be non-personal after investigation; (2) a job category of a worker is updated; or, (3) dosimeters or data are returned late. The report therefore contains preliminary data on the second year (Table 1), and more complete data on the first year (Tables 2-6).

For a description and a guide to interpretation of the data, the reader is referred to the next section "General comments". The section "Comments specific to this report" has been included to address situations that do not recur from year to year.

## General comments

The statistics include doses as they exist in the database at the time they are extracted for analysis, which in the case of this report is October 2, 2007. Doses are assigned to the year in which the dosimeter was issued, even though some of the dosimeters may actually have been worn during part of the subsequent year. As the statistics are determined in the same manner each year, the annual dose figures are based on a 12-month period, though not necessarily the strict calendar year.

Dose records submitted by outside organizations such as nuclear power generating stations, uranium mines, and commercial processors, are included to the extent that they have been received. The doses are representative of the calendar year only if the fourth quarter records have been received by the time of analysis. When statistics are based on partial data, the fact is indicated in the section "Comments specific to this report".

All doses are in International System (SI) units and presented to the nearest hundredth of a millisievert (1 mSv = 100 mrem). For the external whole body doses various organizations have set recording thresholds from 0 to 0.2 mSv.

The words "dose" and "exposure" are used interchangeably in this report. Doses of different types of radiation are expressed in mSv and added to give the effective dose stated in the report. The following dose types may be included:

- External whole body gamma.
- External whole body high energy beta.
- External whole body X-ray.
- External whole body neutron.
- Internal whole body tritium, as determined by urinalysis.
- Radon progeny exposures, converted from WLM values (see below).

All types of exposure are given in one total. In Table 5, the percentage contribution of radon progeny and tritium components are indicated. Skin doses and extremity doses are not included in the report but are recorded in the database.

In the NDR database, radon progeny exposures are expressed in Working Level Months (WLM), which are in most cases calculated by the mines on the basis of area monitoring<sup>(2)</sup>. In the report the radon progeny exposures are converted to equivalent doses (in mSv). The value used in this report is 5 mSv/WLM, in accordance with the radiation protection regulations<sup>(3)</sup> under the *Nuclear Safety and Control Act*.

Job category designations are based on a standard list provided by the Registry and are updated when the Registry is notified. The job category is selected by the organization from a standard list maintained by the NDR. The NDR keeps the most recent job category that an organization submits for a worker in a given year. However, a worker who has been monitored by more than one organization, can have records under more than one job category for the same year. Some organizations have their own job classifications schemes, and translate them into the Registry's standardized list prior to submission of the records.

In this report, the data are tabulated as follows:

#### **2006: Preliminary analysis**

##### **Table 1:**

Table 1 gives the annual dose distributions by job category.

##### **2005: Final Analysis**

##### **Table 2:**

Table 2 contains dose statistics by job category and province or territory.

##### **Table 3:**

Table 3 contains dose statistics by age and sex. In this table job categories have been grouped into "job sectors".

##### **Table 4:**

Table 4 contains various dose statistics by job category. The table also shows the parameters of the statistical distribution applied to the doses, as determined by maximum likelihood estimation. From that information, model estimates and confidence intervals for these statistics have been calculated. For a more detailed discussion the reader is referred to the Appendix and reference [4].

Table 4 lists statistics for annual doses and for doses over fixed and rolling five year blocks, for use in comparing doses with various regulatory limits. New fixed five year blocks start in 2001, 2006, and so on. New rolling five year blocks start each calendar year.

##### **Table 5:**

Table 5 lists collective annual doses for job categories with percentages of tritium and radon progeny exposures.

##### **Table 6:**

Table 6 shows 10 year trends in number of workers and average dose for the various job categories.

It should be noted that in the tables, a worker is counted more than once if he (she) works in more than one job category, in more than one province, or in more than one job sector in the same year. For this reason the totals in Tables 2-6 may slightly differ.

### **Comments specific to this report**

Dose distributions are described with statistical models defined by a set of four parameters. A method for obtaining point estimates for model statistics is outlined in the appendix and in more detail in reference [4]. A method for obtaining confidence intervals is described in reference [4] only. Starting with the 2006 Annual Report, Table 4 compares model statistics and their confidence intervals with observed statistics. This gives some indication of the usefulness of the fit for estimating statistics that are not listed in this report and for predictive purposes. The statistical models work quite well for job categories in nuclear power production, uranium mining, and particle accelerator research, less so for medicine and industry. It is to be noted that no literature exists on statistical models as applied to doses accumulating in 5 year blocks. Generally, they do not seem to perform as well as models of annual doses. More analyses need to be run in subsequent annual reports so that clearer patterns emerge from which firmer conclusions can be drawn.

For dose statistics over 5-year blocks, the fixed blocks and rolling blocks are identical in this report. Only one set of statistics is reported for both.

## References

1. The National Dose Registry's Web site is found at  
<http://www.healthcanada.gc.ca/ndr>
2. ICRP publication 65, "Protection against Radon-222 at home and at work". Annals of the ICRP 23(2), p. 4 (1993).
3. Regulations of the *Nuclear Safety and Control Act*, Canada Gazette, June 21, 2000, part 2. For more information see the web site of the CNSC:  
<http://www.cnsccsn.gc.ca>
4. Sont, W.N. "A family of statistical distributions for modelling occupational radiation doses in low dose occupations". Radiation Prot Dosimetry 121(3) pp. 284-292 (2006).
5. Kumazawa, S. and Numakunai, T. "A new theoretical analysis of occupational dose distributions indicating the effect of dose limits". Health Physics 41(3) pp. 465-475 (1981).

## 2006 Preliminary Analysis

**Table 1**  
**Breakdown of annual doses by job category for all of Canada**

Job Category	Distribution of workers over dose intervals							Number of Workers	Avg. Dose (mSv)	Avg. of Positive Doses
	0 mSv	>0-1 mSv	>1-2 mSv	>2-5 mSv	>5-20 mSv	>20-50 mSv	>50 mSv			
<b>Administration</b>										
Administrator	495	191	2	2	0	0	0	690	0.11	0.39
Office staff	3049	406	22	7	1	0	0	3485	0.05	0.39
Safety officer	309	86	3	3	1	0	0	402	0.11	0.48
<b>Industry and Research</b>										
Aircrew	11	1	1	2	0	0	0	15	0.50	1.87
Ground transportation	42	20	12	8	1	0	0	83	0.70	1.41
Industrial radiographer	1188	511	246	458	530	14	1	2948	2.63	4.40
Instructor (non-medical)	286	25	3	1	1	0	0	316	0.06	0.68
Instrument technician	1488	607	34	37	5	0	0	2171	0.17	0.55
Laboratory technician (industrial)	2122	634	80	62	15	0	0	2913	0.22	0.80
Nuclear fuel processor	364	365	108	117	43	0	0	997	0.98	1.54
Scientist/Engineer (field)	843	702	54	35	13	0	0	1647	0.30	0.62
Scientist/Engineer (laboratory)	3760	556	12	4	4	0	0	4336	0.04	0.31
Security	214	9	1	0	0	0	0	224	0.01	0.32
Tradesmen	121	63	7	0	2	0	0	193	0.20	0.54
Well logger	1125	1199	193	115	13	0	0	2645	0.40	0.69
<b>Medicine</b>										
Chiropractor	1041	70	3	2	0	0	0	1116	0.02	0.37
Dental assistant	13691	365	6	2	0	0	0	14064	0.01	0.22
Dental hygienist	9615	193	5	1	2	0	0	9816	0.01	0.31
Dental therapist/nurse	152	17	0	0	0	0	0	169	0.02	0.24
Dentist	7610	255	8	1	1	0	0	7875	0.01	0.32
Gynaecologist	10	1	0	0	0	0	0	11	0.01	0.10
Laboratory technician (medical)	2254	365	28	36	7	0	0	2690	0.10	0.64
Medical physicist	363	58	0	3	1	0	0	425	0.06	0.43
Medical radiation technologist	10447	3005	124	87	16	0	0	13679	0.09	0.38
Nuclear medicine technologist	350	445	385	535	86	0	0	1801	1.66	2.06
Nurse	5997	1412	59	33	6	0	0	7507	0.08	0.38
Physician	2214	712	77	53	17	0	0	3073	0.21	0.74
Radiation therapist	1250	439	7	3	1	1	0	1701	0.08	0.32
Radiologist (diagnostic)	1584	429	36	19	7	4	0	2079	0.20	0.83

**Table 1 (Cont'd)**  
**Breakdown of annual doses by job category for all of Canada**

Job Category	Distribution of workers over dose intervals							Number of Worker	Avg. Dose (mSv)	Avg. of Positive Doses
	0 mSv	>0-1 mSv	>1-2 mSv	>2-5 mSv	>5-20 mSv	>20-50 mSv	>50 mSv			
Radiologist (therapeutic)	222	28	1	5	2	0	0	258	0.13	0.96
Veterinarian	2963	258	1	3	0	0	0	3225	0.02	0.28
Veterinary technician	3511	257	4	3	4	0	0	3779	0.03	0.39
Ward aid/orderly	875	111	12	4	0	0	0	1002	0.06	0.44
<b>Nuclear Power</b>										
Reactor - administration	3229	330	40	57	27	0	0	3683	0.14	1.15
Reactor - chemical and radiation control	227	249	90	166	109	0	0	841	1.87	2.57
Reactor - construction	760	209	56	104	90	0	0	1219	0.94	2.49
Reactor - control technician	149	107	50	34	38	0	0	378	1.35	2.23
Reactor - electrical maintenance	696	355	133	122	67	0	0	1373	0.84	1.71
Reactor - fuel handling	26	18	10	15	17	0	0	86	2.33	3.33
Reactor - general maintenance	1018	432	122	189	108	0	0	1869	0.91	2.00
Reactor - health physics	62	25	6	10	0	0	0	103	0.50	1.25
Reactor - industrial radiographer	13	10	12	19	11	0	0	65	2.61	3.26
Reactor - mechanical maintenance	559	433	168	344	201	0	0	1705	1.77	2.64
Reactor - operations	1091	700	251	285	146	0	0	2473	1.05	1.88
Reactor - scientific/professional	2212	431	61	100	42	0	0	2846	0.29	1.31
Reactor - training	71	24	3	3	1	0	0	102	0.26	0.84
Reactor - visitor	3940	560	172	296	223	0	0	5191	0.61	2.54
<b>Particle Accelerators</b>										
Accelerators - Administration	26	13	1	0	0	0	0	40	0.10	0.29
Accelerators - Control technicians	18	7	1	2	0	0	0	28	0.40	1.12
Accelerators - Designers	9	6	0	0	2	0	0	17	0.78	1.66
Accelerators - General Maintenance	4	8	1	7	0	0	0	20	1.34	1.67
Accelerators - Machinists	17	8	0	0	1	0	0	26	0.30	0.86
Accelerators - Mechanical technicians	29	20	5	12	9	0	0	75	1.70	2.78
Accelerators - Operations	4	13	7	10	4	0	0	38	1.95	2.18
Accelerators - Scientific/professional	168	106	11	11	3	0	0	299	0.36	0.81
Accelerators - Visitors	65	34	0	1	0	0	0	100	0.13	0.37
<b>Uranium Mining</b>										
Uranium mine electrician	7	18	0	0	0	0	0	25	0.04	0.06
Uranium mine mill maintenance	112	267	57	12	0	0	0	448	0.44	0.59
Uranium mine mill worker	20	98	81	40	1	0	0	240	1.18	1.29
Uranium mine nurse	19	8	0	0	0	0	0	27	0.09	0.29

**Table 1 (Cont'd)****Breakdown of annual doses by job category for all of Canada**

Job Category	Distribution of workers over dose intervals							Number of Worker	Avg. Dose (mSv)	Avg. of Positive Doses
	0 mSv	>0-1 mSv	>1-2 mSv	>2-5 mSv	>5-20 mSv	>20-50 mSv	>50 mSv			
Uranium mine office staff	250	171	0	1	0	0	0	422	0.08	0.20
Uranium mine support worker	53	210	33	45	7	0	0	348	0.88	1.04
Uranium mine surface maintenance	514	450	35	9	2	0	0	1010	0.20	0.41
Uranium mine surface miner	49	98	8	2	0	0	0	157	0.30	0.44
Uranium mine surface personnel	180	172	19	0	0	0	0	371	0.18	0.35
Uranium mine surface support worker	768	478	18	6	0	0	0	1270	0.11	0.27
Uranium mine underground maintenance	45	124	29	12	0	0	0	210	0.57	0.73
Uranium mine underground miner	35	156	63	81	36	0	0	371	1.74	1.92
Uranium mine underground personnel	29	65	27	10	0	0	0	131	0.67	0.86
Uranium mine visitor	54	7	0	0	0	0	0	61	0.02	0.18
<b>Miscellaneous/Unknown</b>										
Miscellaneous/Unknown	27505	5832	620	627	470	7	1	35062	0.26	1.20
<b>Total</b>										
<b>Total</b>	117354	25045	3551	4126	2456	29	2	152563	0.31	1.33

## 2005 Final Analysis

**Table 2**

**Number of workers (top) and average whole body dose in mSv (bottom) by job category and province/territory**

Job Sector and Category	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
<b>Administration</b>													
Administrator	9 0.09	0 -	5 0.00	10 0.08	77 0.00	378 0.17	21 0.00	8 0.01	101 0.05	46 0.04	0 -	1 0.00	656 0.11
Office staff	39 0.01	11 0.00	80 0.01	46 0.04	639 0.01	1699 0.09	241 0.02	89 0.00	483 0.06	260 0.03	14 0.00	0 -	3600 0.06
Safety officer	3 0.00	1 0.13	5 0.02	8 0.10	30 0.03	402 0.13	30 0.01	8 0.00	40 0.20	21 0.54	0 -	0 -	548 0.14
<b>Sector total</b>	<b>51 0.02</b>	<b>12 0.01</b>	<b>90 0.01</b>	<b>64 0.06</b>	<b>746 0.01</b>	<b>2479 0.11</b>	<b>292 0.02</b>	<b>105 0.00</b>	<b>624 0.07</b>	<b>327 0.07</b>	<b>14 0.00</b>	<b>1 0.00</b>	<b>4804 0.07</b>
<b>Industry and Research</b>													
Aircrew	0 -	0 -	0 -	0 -	4 0.00	4 0.91	0 -	0 -	1 0.55	1 0.29	0 -	0 -	10 0.45
Ground transportation	0 -	0 -	0 -	0 -	14 0.85	52 0.69	0 -	0 -	9 0.11	5 0.10	0 -	0 -	80 0.62
Industrial radiographer	52 0.32	0 -	71 0.30	85 0.98	331 1.00	603 1.24	29 0.65	161 1.46	1350 4.64	210 1.81	1 0.00	2 0.00	2824 2.87
Instructor (non-medical)	7 0.05	0 -	15 0.10	4 0.24	38 0.05	109 0.04	10 0.01	20 0.04	51 0.13	23 0.00	0 -	0 -	277 0.06
Instrument technician	69 0.01	0 -	47 0.24	189 0.33	449 0.13	951 0.17	37 0.05	62 0.13	301 0.21	63 0.35	- -	- -	2167 0.18
Laboratory technician (industrial)	37 0.15	7 0.09	48 0.06	55 0.28	726 0.13	1404 0.39	140 0.01	249 0.07	224 0.36	136 0.34	0 -	0 -	3025 0.27
Nuclear fuel processor	0 -	0 -	0 -	0 -	870 1.15	0 -	0 -	94 0.31	0 -	0 -	0 -	0 -	964 1.07
Scientist/Engineer (field)	19 0.56	0 -	27 0.18	13 0.36	51 0.07	832 0.32	11 0.20	181 0.07	328 0.27	111 0.18	3 0.12	0 -	1575 0.26
Scientist/Engineer (laboratory)	62 0.03	7 0.08	139 0.07	23 0.17	1736 0.03	1832 0.09	77 0.03	157 0.13	832 0.03	323 0.61	1 0.61	0 -	5185 0.07
Security	1 0.24	0 -	9 0.00	12 0.09	1 0.00	131 0.01	0 -	0 -	11 0.00	12 0.00	0 -	0 -	177 0.01
Tradesmen	1 0.00	0 -	0 -	2 3.61	7 0.00	133 0.16	0 -	13 0.09	44 0.06	4 0.00	0 -	0 -	204 0.16
Well logger	0 -	0 -	0 -	10 0.13	1 0.00	32 0.56	0 -	11 0.01	2418 0.41	4 0.22	0 -	0 -	2476 0.41
<b>Sector total</b>	<b>248 0.15</b>	<b>14 0.09</b>	<b>356 0.14</b>	<b>393 0.46</b>	<b>3358 0.17</b>	<b>6953 0.43</b>	<b>304 0.09</b>	<b>854 0.33</b>	<b>5663 1.35</b>	<b>892 0.54</b>	<b>5 0.20</b>	<b>2 0.00</b>	<b>18964 0.64</b>

**Table 2 (Cont'd)**

**Number of workers (top) and average whole body dose in mSv (bottom) by job category and province/territory**

Job Sector and Category	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
<b>Medicine</b>													
Chiropractor	1 0.55	0 -	3 0.00	3 0.22	614 0.06	258 0.02	76 0.03	4 0.00	125 0.05	17 0.15	0 -	0 -	1100 0.05
Dental assistant	198 0.03	32 0.00	332 0.01	198 0.01	3083 0.02	5238 0.01	841 0.00	349 0.02	3144 0.01	642 0.01	24 0.00	4 0.03	14059 0.01
Dental hygienist	58 0.03	20 0.00	221 0.01	120 0.01	3214 0.01	3752 0.01	539 0.00	156 0.01	1258 0.01	300 0.01	5 0.00	1 0.00	9619 0.01
Dental therapist/nurse	0 -	0 -	0 -	0 -	9 0.02	20 0.00	37 0.02	47 0.02	22 0.03	3 0.00	8 0.00	10 0.42	154 0.04
Dentist	111 0.05	11 0.03	170 0.01	94 0.03	3035 0.01	2662 0.01	566 0.00	110 0.01	990 0.01	241 0.02	14 0.01	0 -	7969 0.01
Gynaecologist	1 0.00	0 -	1 0.23	0 -	1 0.00	1 0.00	6 0.00	0 -	1 0.00	1 0.00	1 0.00	0 -	13 0.02
Laboratory technician (medical)	35 0.02	4 0.15	105 0.01	17 0.12	1251 0.10	1902 0.14	108 0.01	64 0.02	268 0.09	178 0.10	2 0.00	0 -	3934 0.11
Medical physicist	7 0.00	4 0.00	11 0.04	7 0.26	100 0.10	182 0.04	21 0.13	11 0.00	23 0.10	73 0.02	0 -	0 -	438 0.06
Medical radiation technologist	339 0.17	44 0.15	168 0.14	398 0.12	3412 0.10	4784 0.11	714 0.06	687 0.05	1660 0.21	1456 0.08	48 0.01	10 0.13	13612 0.12
Nuclear medicine technologist	22 1.28	5 0.88	47 1.89	39 1.31	540 1.82	728 1.64	66 1.25	26 1.86	161 1.76	199 0.71	0 -	0 -	1818 1.60
Nurse	200 0.07	4 0.00	124 0.08	167 0.16	1319 0.04	3724 0.11	290 0.03	130 0.13	517 0.18	451 0.10	102 0.01	74 0.13	7100 0.09
Physician	42 0.46	5 0.18	52 0.42	39 0.35	891 0.24	1334 0.20	115 0.11	39 1.06	212 0.27	220 0.14	3 0.00	6 0.00	2942 0.23
Radiation therapist	16 0.54	11 0.01	36 0.21	39 0.13	348 0.13	786 0.09	52 0.05	63 0.12	160 0.10	291 0.07	0 -	0 -	1781 0.10
Radiologist (diagnostic)	53 0.12	1 0.00	25 0.31	48 0.16	544 0.12	897 0.18	91 0.06	49 0.00	262 0.28	236 0.19	4 0.00	0 -	2198 0.17
Radiologist (therapeutic)	2 0.05	0 -	5 0.04	7 0.02	84 0.09	116 0.16	6 0.00	9 0.04	23 0.09	29 0.00	0 -	0 -	279 0.11
Veterinarian	43 0.03	55 0.09	154 0.03	79 0.10	872 0.02	531 0.05	177 0.02	170 0.01	654 0.02	582 0.03	0 -	8 0.01	3314 0.03
Veterinary technician	49 0.03	14 0.05	123 0.01	90 0.02	876 0.01	590 0.07	163 0.01	113 0.01	700 0.02	782 0.03	1 0.00	11 0.12	3493 0.03
Ward aid/orderly	9 0.01	8 0.00	12 0.03	23 0.07	603 0.05	195 0.07	51 0.01	15 0.15	71 0.06	72 0.12	6 0.00	5 0.00	1070 0.06

**Table 2 (Cont'd)**

**Number of workers (top) and average whole body dose in mSv (bottom) by job category and province/territory**

Job Sector and Category	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
<b>Sector total</b>	<b>1186</b>	<b>218</b>	<b>1589</b>	<b>1368</b>	<b>20796</b>	<b>27700</b>	<b>3919</b>	<b>2042</b>	<b>10251</b>	<b>5773</b>	<b>218</b>	<b>129</b>	<b>74893</b>
	0.13	0.09	0.11	0.13	0.10	0.11	0.04	0.08	0.10	0.08	0.01	0.13	0.10
<b>Nuclear Power</b>													
Reactor - administration	0	0	0	240	612	3113	0	0	0	0	0	0	3955
	-	-	-	0.17	0.05	0.20	-	-	-	-	-	-	0.17
Reactor - chemical and radiation control	0	0	0	26	28	614	0	0	0	0	0	0	668
	-	-	-	0.52	0.80	2.24	-	-	-	-	-	-	2.11
Reactor - construction	0	0	0	0	85	1098	0	0	0	0	0	0	1183
	-	-	-	-	1.05	1.94	-	-	-	-	-	-	1.87
Reactor - control technician	0	0	0	0	195	73	0	0	0	0	0	0	268
	-	-	-	-	1.04	0.95	-	-	-	-	-	-	1.02
Reactor - electrical maintenance	0	0	0	73	49	1335	0	0	0	0	0	0	1457
	-	-	-	0.30	1.05	1.04	-	-	-	-	-	-	1.00
Reactor - fuel handling	0	0	0	110	18	0	0	0	0	0	0	0	128
	-	-	-	4.60	2.66	-	-	-	-	-	-	-	4.33
Reactor - general maintenance	0	0	0	233	92	1211	0	0	0	0	0	0	1536
	-	-	-	0.50	1.94	1.24	-	-	-	-	-	-	1.17
Reactor - health physics	0	0	0	34	24	25	0	0	0	0	0	0	83
	-	-	-	1.05	0.08	0.13	-	-	-	-	-	-	0.49
Reactor - industrial radiographer	0	0	0	0	6	61	0	0	0	0	0	0	67
	-	-	-	-	6.74	3.06	-	-	-	-	-	-	3.39
Reactor - mechanical maintenance	0	0	0	248	149	1370	0	0	0	0	0	0	1767
	-	-	-	1.61	2.25	2.35	-	-	-	-	-	-	2.24
Reactor - operations	0	0	0	134	110	2194	0	0	0	0	0	0	2437
	-	-	-	1.68	0.77	1.18	-	-	-	-	-	-	1.19
Reactor - scientific/professional	0	0	0	285	244	2043	0	0	0	0	0	0	2564
	-	-	-	0.52	0.42	0.42	-	-	-	-	-	-	0.43
Reactor - training	0	0	0	42	17	30	0	0	0	0	0	0	89
	-	-	-	0.48	0.18	0.19	-	-	-	-	-	-	0.33
Reactor - visitor	0	0	0	0	1079	5435	0	0	0	0	0	0	6487
	-	-	-	-	0.26	1.06	-	-	-	-	-	-	0.93
<b>Sector total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1425</b>	<b>2708</b>	<b>18602</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>22689</b>
	-	-	-	1.07	0.54	1.06	-	-	-	-	-	-	1.00
<b>Particle Accelerators</b>													
Accelerators - Administration	0	0	0	0	0	0	0	0	0	39	0	0	39
	-	-	-	-	-	-	-	-	-	0.14	-	-	0.14
Accelerators - Control technicians	0	0	0	0	0	0	0	0	0	29	0	0	29
	-	-	-	-	-	-	-	-	-	0.38	-	-	0.38

**Table 2 (Cont'd)**

**Number of workers (top) and average whole body dose in mSv (bottom) by job category and province/territory**

Job Sector and Category	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
Accelerators - Designers	0	0	0	0	0	0	0	0	0	17	0	0	17
	-	-	-	-	-	-	-	-	-	0.59	-	-	0.59
Accelerators - General Maintenance	0	0	0	0	0	0	0	0	0	19	0	0	19
	-	-	-	-	-	-	-	-	-	1.01	-	-	1.01
Accelerators - Machinists	0	0	0	0	0	0	0	0	0	28	0	0	28
	-	-	-	-	-	-	-	-	-	0.28	-	-	0.28
Accelerators - Mechanical technicians	0	0	0	0	0	0	0	0	0	78	0	0	78
	-	-	-	-	-	-	-	-	-	1.06	-	-	1.06
Accelerators - Operations	0	0	0	0	0	0	0	0	0	42	0	0	42
	-	-	-	-	-	-	-	-	-	1.96	-	-	1.96
Accelerators - Scientific/professional	0	0	0	0	0	0	0	0	0	322	0	0	322
	-	-	-	-	-	-	-	-	-	0.26	-	-	0.26
Accelerators - Visitors	0	0	0	0	0	0	0	0	0	98	0	0	98
	-	-	-	-	-	-	-	-	-	0.07	-	-	0.07
<b>Sector total</b>	<b>0</b>	<b>672</b>	<b>0</b>	<b>0</b>	<b>672</b>								
	-	-	-	-	-	-	-	-	-	0.46	-	-	0.46
<b>Uranium Mining</b>													
Uranium mine electrician	0	0	0	0	0	0	0	1	0	0	0	0	1
	-	-	-	-	-	-	-	0.05	-	-	-	-	0.05
Uranium mine mill maintenance	0	0	0	0	0	0	0	310	0	0	0	0	310
	-	-	-	-	-	-	-	0.68	-	-	-	-	0.68
Uranium mine mill worker	0	0	0	0	0	0	0	285	0	0	0	0	285
	-	-	-	-	-	-	-	1.00	-	-	-	-	1.00
Uranium mine nurse	0	0	0	0	0	0	0	23	0	0	0	0	23
	-	-	-	-	-	-	-	0.04	-	-	-	-	0.04
Uranium mine office staff	0	0	0	0	0	0	0	286	0	0	0	0	286
	-	-	-	-	-	-	-	0.10	-	-	-	-	0.10
Uranium mine support worker	0	0	0	0	0	0	0	350	0	0	0	0	350
	-	-	-	-	-	-	-	0.89	-	-	-	-	0.89
Uranium mine surface maintenance	0	0	0	0	0	0	0	385	0	0	0	0	385
	-	-	-	-	-	-	-	0.27	-	-	-	-	0.27
Uranium mine surface miner	0	0	0	0	0	0	0	73	0	0	0	0	73
	-	-	-	-	-	-	-	0.83	-	-	-	-	0.83
Uranium mine surface personnel	0	0	0	0	0	11	0	269	0	0	0	0	280
	-	-	-	-	-	0.06	-	0.34	-	-	-	-	0.33
Uranium mine surface support worker	0	0	0	0	0	0	0	795	0	0	0	0	795
	-	-	-	-	-	-	-	0.12	-	-	-	-	0.12

**Table 2 (Cont'd)**

**Number of workers (top) and average whole body dose in mSv (bottom) by job category and province/territory**

Job Sector and Category	Nfld.	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	N.W.T.	Yukon	Canada
Uranium mine underground	0	0	0	0	0	0	0	190	0	0	0	0	190
	-	-	-	-	-	-	-	0.60	-	-	-	-	0.60
Uranium mine underground miner	0	0	0	0	0	0	0	258	0	0	0	0	258
	-	-	-	-	-	-	-	1.73	-	-	-	-	1.73
Uranium mine underground personnel	0	0	0	0	0	6	0	124	0	0	0	0	125
	-	-	-	-	-	0.01	-	0.60	-	-	-	-	0.60
Uranium mine visitor	0	0	0	0	0	1	0	53	0	0	0	0	53
	-	-	-	-	-	0.00	-	0.02	-	-	-	-	0.02
<b>Sector total</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>3402</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3414</b>
	-	-	-	-	-	0.04	-	0.53	-	-	-	-	0.53
<b>Miscellaneous/unknown</b>													
Miscellaneous/unknown	254	41	456	407	7156	13011	763	851	3297	1711	44	3	27915
	0.34	0.11	0.37	1.99	1.19	6.59	0.18	0.50	2.17	45.64	0.20	0.16	15.80
<b>Sector total</b>	<b>254</b>	<b>41</b>	<b>456</b>	<b>407</b>	<b>7156</b>	<b>13011</b>	<b>763</b>	<b>851</b>	<b>3297</b>	<b>1711</b>	<b>44</b>	<b>3</b>	<b>27915</b>
	<b>0.06</b>	<b>0.05</b>	<b>0.13</b>	<b>0.25</b>	<b>0.06</b>	<b>0.34</b>	<b>0.04</b>	<b>0.07</b>	<b>0.24</b>	<b>5.96</b>	<b>0.03</b>	<b>0.16</b>	<b>0.58</b>
<b>Total</b>													
Total	1710	285	2456	3569	33650	65724	5173	6896	19295	9146	280	135	147099
	0.12	0.08	0.12	0.56	0.13	0.46	0.04	0.34	0.49	1.26	0.01	0.13	0.41
<b>Sector total</b>	<b>1710</b>	<b>285</b>	<b>2456</b>	<b>3569</b>	<b>33650</b>	<b>65724</b>	<b>5173</b>	<b>6896</b>	<b>19295</b>	<b>9146</b>	<b>280</b>	<b>135</b>	<b>147099</b>
	<b>0.12</b>	<b>0.08</b>	<b>0.12</b>	<b>0.56</b>	<b>0.13</b>	<b>0.46</b>	<b>0.04</b>	<b>0.34</b>	<b>0.49</b>	<b>1.26</b>	<b>0.01</b>	<b>0.13</b>	<b>0.41</b>

## 2005 Final Analysis

**Table 3**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Administration</b>	Below 25	Number of Workers	32	269	0	301
		Average dose (mSv)	0.25	0.05	-	0.07
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	25-34	Number of Workers	150	848	0	998
		Average dose (mSv)	0.17	0.05	-	0.07
		% tritium	0.47	0.05	-	0.21
		% radon progeny	0.00	0.00	-	0.00
	35-44	Number of Workers	284	1040	0	1324
		Average dose (mSv)	0.20	0.04	-	0.07
		% tritium	0.17	0.57	-	0.34
		% radon progeny	0.00	0.00	-	0.00
	45-54	Number of Workers	312	1149	0	1461
		Average dose (mSv)	0.23	0.04	-	0.08
		% tritium	0.99	0.00	-	0.58
		% radon progeny	0.00	0.00	-	0.00
	55 and up	Number of Workers	149	472	0	621
		Average dose (mSv)	0.21	0.04	-	0.08
		% tritium	0.16	0.12	-	0.15
		% radon progeny	0.00	0.00	-	0.00
	Total	Number of Workers	927	3778	0	4705
		Average dose (mSv)	0.21	0.04	-	0.08
		% tritium	0.50	0.17	-	0.35
		% radon progeny	0.00	0.00	-	0.00
<b>Industry and Research</b>	Below 25	Number of Workers	1418	380	0	1798
		Average dose (mSv)	1.65	0.32	-	1.37
		% tritium	0.21	0.67	-	0.23
		% radon progeny	0.14	0.00	-	0.13
	25-34	Number of Workers	3879	1567	0	5446
		Average dose (mSv)	0.97	0.15	-	0.73
		% tritium	0.38	3.30	-	0.55
		% radon progeny	0.01	0.00	-	0.01
	35-44	Number of Workers	3895	1114	0	5009
		Average dose (mSv)	0.74	0.16	-	0.61
		% tritium	0.40	4.77	-	0.65
		% radon progeny	0.03	0.00	-	0.02

**Table 3 (Cont'd)**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Industry and Research</b>	45-54	Number of Workers	3418	836	0	4254
		Average dose (mSv)	0.58	0.13	-	0.49
		% tritium	0.55	0.51	-	0.55
		% radon progeny	0.00	0.42	-	0.02
	55 and up	Number of Workers	1663	240	0	1903
		Average dose (mSv)	0.40	0.18	-	0.37
		% tritium	0.22	0.00	-	0.21
		% radon progeny	0.00	0.00	-	0.00
	Total	Number of Workers	14273	4137	0	18410
		Average dose (mSv)	0.82	0.16	-	0.67
		% tritium	0.37	2.56	-	0.49
		% radon progeny	0.04	0.07	-	0.04
<b>Medicine</b>	Below 25	Number of Workers	391	5015	0	5406
		Average dose (mSv)	0.30	0.06	-	0.08
		% tritium	1.93	0.00	-	0.52
		% radon progeny	0.00	0.00	-	0.00
	25-34	Number of Workers	3210	16656	0	19866
		Average dose (mSv)	0.22	0.08	-	0.10
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	35-44	Number of Workers	4978	16475	0	21453
		Average dose (mSv)	0.17	0.10	-	0.11
		% tritium	0.02	0.00	-	0.01
		% radon progeny	0.00	0.00	-	0.00
	45-54	Number of Workers	5130	12376	0	17506
		Average dose (mSv)	0.14	0.11	-	0.12
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	55 and up	Number of Workers	4128	4357	0	8485
		Average dose (mSv)	0.08	0.09	-	0.08
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	Total	Number of Workers	17837	54879	0	72716
		Average dose (mSv)	0.15	0.09	-	0.10
		% tritium	0.09	0.00	-	0.03
		% radon progeny	0.00	0.00	-	0.00
<b>Nuclear Power</b>	Below 25	Number of Workers	884	189	0	1073
		Average dose (mSv)	1.29	0.38	-	1.13
		% tritium	11.32	17.05	-	11.66
		% radon progeny	0.00	0.00	-	0.00

**Table 3 (Cont'd)**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Nuclear Power</b>	25-34	Number of Workers	2946	590	0	3536
		Average dose (mSv)	1.65	0.42	-	1.44
		% tritium	17.30	22.01	-	17.52
		% radon progeny	0.00	0.00	-	0.00
	35-44	Number of Workers	5091	846	0	5937
		Average dose (mSv)	1.25	0.44	-	1.13
		% tritium	18.24	20.59	-	18.37
		% radon progeny	0.00	0.00	-	0.00
	45-54	Number of Workers	6662	767	0	7429
		Average dose (mSv)	1.07	0.25	-	0.98
		% tritium	16.66	22.26	-	16.80
		% radon progeny	0.00	0.00	-	0.00
	55 and up	Number of Workers	3339	168	0	3507
		Average dose (mSv)	0.64	0.15	-	0.62
		% tritium	16.70	26.31	-	16.81
		% radon progeny	0.00	0.00	-	0.00
	Total	Number of Workers	18922	2560	0	21482
		Average dose (mSv)	1.14	0.35	-	1.05
		% tritium	16.99	21.21	-	17.16
		% radon progeny	0.00	0.00	-	0.00
<b>Particle Accelerators</b>	Below 25	Number of Workers	21	5	0	26
		Average dose (mSv)	0.21	0.22	-	0.22
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	25-34	Number of Workers	83	21	0	104
		Average dose (mSv)	0.60	0.49	-	0.58
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	35-44	Number of Workers	103	21	0	124
		Average dose (mSv)	0.66	0.23	-	0.59
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	45-54	Number of Workers	151	28	0	179
		Average dose (mSv)	0.71	0.10	-	0.61
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
	55 and up	Number of Workers	195	7	0	202
		Average dose (mSv)	0.28	0.07	-	0.28
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00

**Table 3 (Cont'd)**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Particle Accelerators</b>	Total	Number of Workers	553	82	0	635
		Average dose (mSv)	0.51	0.24	-	0.48
		% tritium	0.00	0.00	-	0.00
		% radon progeny	0.00	0.00	-	0.00
<b>Uranium Mining</b>	Below 25	Number of Workers	281	63	0	344
		Average dose (mSv)	0.33	0.15	-	0.29
		% tritium	0.00	0.00	-	0.00
		% radon progeny	45.91	50.00	-	46.28
	25-34	Number of Workers	722	81	0	803
		Average dose (mSv)	0.62	0.26	-	0.58
		% tritium	0.00	0.00	-	0.00
		% radon progeny	50.34	52.38	-	50.44
	35-44	Number of Workers	819	66	0	885
		Average dose (mSv)	0.74	0.20	-	0.70
		% tritium	0.00	0.00	-	0.00
		% radon progeny	48.06	66.67	-	48.46
	45-54	Number of Workers	716	57	0	773
		Average dose (mSv)	0.65	0.26	-	0.62
		% tritium	0.00	0.00	-	0.00
		% radon progeny	47.46	65.33	-	48.02
	55 and up	Number of Workers	325	9	0	334
		Average dose (mSv)	0.44	0.17	-	0.43
		% tritium	0.00	0.00	-	0.00
		% radon progeny	56.98	93.33	-	57.36
	Total	Number of Workers	2863	276	0	3139
		Average dose (mSv)	0.61	0.22	-	0.58
		% tritium	0.00	0.00	-	0.00
		% radon progeny	49.10	59.43	-	49.44
<b>Miscellaneous /Unknown</b>	Below 25	Number of Workers	1590	6182	0	7772
		Average dose (mSv)	6.64	0.04	-	1.39
		% tritium	0.13	0.44	-	0.14
		% radon progeny	0.00	0.04	-	0.00
	25-34	Number of Workers	3248	4860	1	8109
		Average dose (mSv)	0.38	0.08	0.10	0.20
		% tritium	5.32	0.88	0.00	4.28
		% radon progeny	0.00	0.00	0.00	0.00
	35-44	Number of Workers	2840	2410	0	5250
		Average dose (mSv)	0.52	0.13	-	0.34
		% tritium	6.98	1.71	-	6.08
		% radon progeny	0.00	0.00	-	0.00

**Table 3 (Cont'd)**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Miscellaneous /Unknown</b>	45-54	Number of Workers	2099	1444	0	3543
		Average dose (mSv)	0.58	0.13	-	0.40
		% tritium	7.27	0.73	-	6.41
		% radon progeny	0.01	0.00	-	0.01
	55 and up	Number of Workers	905	429	0	1334
		Average dose (mSv)	0.45	0.11	-	0.34
		% tritium	8.40	0.08	-	7.52
		% radon progeny	0.00	0.00	-	0.00
	Unknown	Number of Workers	4	0	0	4
		Average dose (mSv)	0.04	-	-	0.04
		% tritium	0.00	-	-	0.00
		% radon progeny	0.00	-	-	0.00
<b>Total</b>	Total	Number of Workers	10686	15325	1	26012
		Average dose (mSv)	1.39	0.08	0.10	0.62
		% tritium	2.05	0.94	0.00	1.97
		% radon progeny	0.00	0.01	0.00	0.00
	Below 25	Number of Workers	4617	12103	0	16720
		Average dose (mSv)	3.09	0.07	-	0.90
		% tritium	1.05	1.80	-	1.09
		% radon progeny	0.32	0.60	-	0.33
	25-34	Number of Workers	14238	24623	1	38862
		Average dose (mSv)	0.78	0.09	0.10	0.34
		% tritium	8.31	2.92	0.00	7.40
		% radon progeny	2.04	0.49	0.00	1.78
	35-44	Number of Workers	18010	21972	0	39982
		Average dose (mSv)	0.68	0.11	-	0.37
		% tritium	10.36	3.67	-	9.24
		% radon progeny	2.37	0.36	-	2.04
	45-54	Number of Workers	18488	16657	0	35145
		Average dose (mSv)	0.63	0.11	-	0.39
		% tritium	11.01	2.37	-	9.83
		% radon progeny	1.88	0.55	-	1.70
	55 and up	Number of Workers	10704	5682	0	16386
		Average dose (mSv)	0.35	0.09	-	0.26
		% tritium	10.39	1.35	-	9.33
		% radon progeny	2.13	0.28	-	1.91
	Unknown	Number of Workers	4	0	0	4
		Average dose (mSv)	0.04	-	-	0.04
		% tritium	0.00	-	-	0.00
		% radon progeny	0.00	-	-	0.00

**Table 3 (Cont'd)**  
**Dose distribution broken down by job sector, age and sex**

Job Sector	Age	Statistic	Sex			
			Male	Female	Unknown	Overall
<b>Total</b>	<b>Total</b>	Number of Workers	66061	81037	1	147099
		Average dose (mSv)	0.80	0.10	0.10	0.41
		% tritium	7.58	2.81	0.00	6.96
		% radon progeny	1.63	0.46	0.00	1.48

## 2005 Final Analysis

**Table 4**  
**Dose distribution by job category as of the end of 2005**

Administrator							
Annual doses							
Parameters	A	0.089869	B	1.564820	C	0.000000	
Sample size		656					
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.11		0.11		0.09	0.13
Average from 0.1 mSv up		0.41		0.41		0.36	0.45
Number at or exceeding 0.1 mSv		182		169.56		148.57	191.55
Number exceeding 1 mSv		5		6.62		1.62	12.62
Number exceeding 2 mSv		2		0.00		0.00	0.62
Number exceeding 5 mSv		0		0.00		0.00	0.00
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
Doses accumulating over 5 year block starting 2001							
Parameters	A	0.196160	B	0.259854	C	0.000000	
Sample size		1110					
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.39		0.38		0.33	0.44
Average over 0.5 mSv		1.66		1.81		1.64	2.00
Number exceeding 0.5 mSv		243		208.58		183.58	236.60
Number exceeding 5 mSv		4		6.62		1.62	12.62
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Office staff</b>					
<b>Annual doses</b>					
Parameters	A 0.324821	B 0.455893	C 0.000000	D 1.800690	
Sample size	3600				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.06	0.07	0.06	0.07	
Average from 0.1 mSv up	0.41	0.41	0.38	0.45	
Number at or exceeding 0.1 mSv	501	503.59	465.57	545.64	
Number exceeding 1 mSv	26	42.62	29.62	54.62	
Number exceeding 2 mSv	10	4.62	1.62	10.62	
Number exceeding 5 mSv	2	0.00	0.00	0.00	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.376904	B 0.007042	C 0.000000	D 1.791810	
Sample size	6601				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.18	0.21	0.18	0.25	
Average over 0.5 mSv	1.8	2.79	2.32	3.36	
Number exceeding 0.5 mSv	578	410.61	372.61	450.61	
Number exceeding 5 mSv	15	48.62	35.62	62.62	
Number exceeding 20 mSv	1	6.62	2.62	11.62	
Number exceeding 50 mSv	1	0.62	0.00	2.62	
Number exceeding 100 mSv	1	0.00	0.00	0.62	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Safety officer**

<b>Annual doses</b>					
Parameters	A	0.422624	B	0.418047	C
Sample size		548			D
Statistic		Sample value		Expectation value	
Average		0.14		0.15	0.13
Average from 0.1 mSv up		0.44		0.44	0.38
Number at or exceeding 0.1 mSv		171		168.55	149.56
Number exceeding 1 mSv		13		16.62	8.62
Number exceeding 2 mSv		4		2.62	0.00
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.442432	B	0.030648	C
Sample size		704			D
Statistic		Sample value		Expectation value	
Average		0.39		0.45	0.35
Average over 0.5 mSv		1.89		2.25	1.77
Number exceeding 0.5 mSv		124		116.58	97.59
Number exceeding 5 mSv		7		11.62	4.62
Number exceeding 20 mSv		1		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
Number exceeding 100 mSv		0		0.00	0.00

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Aircrew****Annual doses**

Parameters	A	0.046048	B	0.707307	C	0.000000	D	0.045524
Sample size		10						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.44		0.50		0.14		1.09
Average from 0.1 mSv up		0.88		1.00		0.46		1.88
Number at or exceeding 0.1 mSv		5		4.51		1.59		7.44
Number exceeding 1 mSv		2		1.59		0.00		4.51
Number exceeding 2 mSv		0		0.00		0.00		1.59
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00

**Doses accumulating over 5 year block starting 2001**

Parameters	A	0.308701	B	0.106993	C	0.002592	D	0.384271
Sample size		25						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.33		1.26		0.54		2.33
Average over 0.5 mSv		2.92		2.99		1.52		5.19
Number exceeding 0.5 mSv		11		9.53		4.58		14.48
Number exceeding 5 mSv		3		1.61		0.00		4.58
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Ground transportation**

<b>Annual doses</b>					
Parameters	A	0.693236	B	0.100305	C
Sample size		80			D
Statistic		Sample value		Expectation value	
Average		0.62		0.54	
Average from 0.1 mSv up		0.85		0.70	
Number at or exceeding 0.1 mSv		59		60.44	
Number exceeding 1 mSv		15		11.59	
Number exceeding 2 mSv		3		3.61	
Number exceeding 5 mSv		1		0.00	
Number exceeding 20 mSv		0		0.00	
Number exceeding 50 mSv		0		0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.300742	B	0.077462	C
Sample size		273			D
Statistic		Sample value		Expectation value	
Average		0.98		1.01	
Average over 0.5 mSv		2.84		3.17	
Number exceeding 0.5 mSv		91		80.55	
Number exceeding 5 mSv		13		15.61	
Number exceeding 20 mSv		1		0.00	
Number exceeding 50 mSv		0		0.00	
Number exceeding 100 mSv		0		0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Industrial radiographer**

<b>Annual doses</b>					
Parameters	A 0.158339	B 0.078658	C 0.000000	D 0.153661	
Sample size	2824				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	2.87	2.90	2.71	3.07	
Average from 0.1 mSv up	4.9	4.96	4.69	5.22	
Number at or exceeding 0.1 mSv	1651	1647.48	1596.48	1695.47	
Number exceeding 1 mSv	1167	1150.52	1100.53	1199.52	
Number exceeding 2 mSv	982	949.54	904.52	993.56	
Number exceeding 5 mSv	567	596.57	555.58	639.57	
Number exceeding 20 mSv	42	38.62	27.62	50.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.179999	B 0.020260	C 0.001657	D 0.105755	
Sample size	4802				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	8.08	8.15	7.71	8.59	
Average over 0.5 mSv	15.6	16.08	15.35	16.88	
Number exceeding 0.5 mSv	2481	2419.50	2352.50	2483.50	
Number exceeding 5 mSv	1492	1487.55	1426.50	1547.54	
Number exceeding 20 mSv	683	704.59	659.59	752.59	
Number exceeding 50 mSv	172	164.62	140.59	189.62	
Number exceeding 100 mSv	6	6.62	1.62	11.62	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Instructor (non-medical)**

<b>Annual doses</b>								
Parameters	A	0.282814	B	0.043230	C	0.062881	D	2.368570
Sample size		277						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.06		0.09		0.06		0.15
Average from 0.1 mSv up		0.39		0.35		0.20		0.74
Number at or exceeding 0.1 mSv		41		40.59		28.60		52.58
Number exceeding 1 mSv		2		1.62		0.00		5.62
Number exceeding 2 mSv		1		0.62		0.00		3.62
Number exceeding 5 mSv		1		0.00		0.00		1.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.359429	B	0.000000	C	0.027773	D	1.946650
Sample size		429						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.25		0.19		0.11		0.75
Average over 0.5 mSv		4.05		2.69		1.27		15.03
Number exceeding 0.5 mSv		23		20.61		13.62		30.61
Number exceeding 5 mSv		2		1.62		0.00		5.62
Number exceeding 20 mSv		1		0.00		0.00		2.62
Number exceeding 50 mSv		1		0.00		0.00		0.62
Number exceeding 100 mSv		0		0.00		0.00		0.62

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Instrument technician**

<b>Annual doses</b>					
Parameters	A	0.453402	B	0.011564	C
Sample size		2167			D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average		0.18	0.22	0.18	0.27
Average from 0.1 mSv up		0.69	0.78	0.64	0.97
Number at or exceeding 0.1 mSv		564	564.56	524.54	602.55
Number exceeding 1 mSv		73	91.61	74.62	110.61
Number exceeding 2 mSv		38	43.62	31.60	57.62
Number exceeding 5 mSv		8	12.62	6.60	20.62
Number exceeding 20 mSv		1	0.62	0.00	2.62
Number exceeding 50 mSv		0	0.00	0.00	0.62
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.395317	B	0.003715	C
Sample size		3525			D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average		0.82	0.85	0.72	1.04
Average over 0.5 mSv		3.73	4.36	3.65	5.30
Number exceeding 0.5 mSv		736	633.58	591.56	680.58
Number exceeding 5 mSv		90	115.62	96.62	136.62
Number exceeding 20 mSv		24	25.62	15.62	35.62
Number exceeding 50 mSv		11	5.62	1.62	11.62
Number exceeding 100 mSv		2	0.62	0.00	3.62

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Laboratory technician (industrial)**

<b>Annual doses</b>					
Parameters	A	0.386514	B	0.060569	C
Sample size		3025			D
Statistic		Sample value		Expectation value	
Average		0.27		0.29	0.26
Average from 0.1 mSv up		0.9		0.92	0.81
Number at or exceeding 0.1 mSv		907		908.55	858.55
Number exceeding 1 mSv		181		206.61	178.59
Number exceeding 2 mSv		109		104.62	83.62
Number exceeding 5 mSv		24		27.62	18.62
Number exceeding 20 mSv		1		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.345005	B	0.012602	C
Sample size		6506			D
Statistic		Sample value		Expectation value	
Average		0.67		0.70	0.63
Average over 0.5 mSv		3.67		4.14	3.71
Number exceeding 0.5 mSv		1132		1022.59	966.56
Number exceeding 5 mSv		196		212.62	182.62
Number exceeding 20 mSv		27		38.62	26.62
Number exceeding 50 mSv		3		3.62	0.62
Number exceeding 100 mSv		1		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Nuclear fuel processor**

<b>Annual doses</b>					
Parameters	A	0.271786	B	0.198894	C
Sample size	964				D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average	1.07	1.07	0.96	1.17	
Average from 0.1 mSv up	1.7	1.69	1.54	1.83	
Number at or exceeding 0.1 mSv	606	605.47	573.48	635.46	
Number exceeding 1 mSv	279	299.55	270.55	326.54	
Number exceeding 2 mSv	173	182.58	158.58	207.57	
Number exceeding 5 mSv	49	39.61	27.62	52.61	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.319166	B	0.035578	C
Sample size	1195				D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average	4.3	4.34	3.95	4.78	
Average over 0.5 mSv	6.75	7.22	6.66	7.90	
Number exceeding 0.5 mSv	754	709.48	676.48	742.47	
Number exceeding 5 mSv	284	305.56	277.57	334.55	
Number exceeding 20 mSv	70	60.61	46.62	76.61	
Number exceeding 50 mSv	0	0.62	0.00	4.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Scientist/Engineer (field)**

<b>Annual doses</b>					
Parameters	A	0.585055	B	0.035195	C
Sample size		1575			D
Statistic		Sample value		Expectation value	
Average		0.26		0.29	0.25
Average from 0.1 mSv up		0.58		0.59	0.53
Number at or exceeding 0.1 mSv		721		711.51	672.52
Number exceeding 1 mSv		66		98.61	78.61
Number exceeding 2 mSv		33		37.62	26.62
Number exceeding 5 mSv		7		6.62	2.62
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.354100	B	0.102429	C
Sample size		2618			D
Statistic		Sample value		Expectation value	
Average		0.71		0.79	0.72
Average over 0.5 mSv		2.04		2.43	2.25
Number exceeding 0.5 mSv		846		768.55	725.56
Number exceeding 5 mSv		56		91.62	71.62
Number exceeding 20 mSv		5		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
Number exceeding 100 mSv		0		0.00	0.00

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Scientist/Engineer (laboratory)**

<b>Annual doses</b>					
Parameters	A	0.570817	B	0.047199	C
Sample size		5185			
Statistic		Sample value		Expectation value	
Average		0.07		0.09	
Average from 0.1 mSv up		0.36		0.37	
Number at or exceeding 0.1 mSv		1043		1051.57	
Number exceeding 1 mSv		28		67.62	
Number exceeding 2 mSv		13		19.62	
Number exceeding 5 mSv		2		1.62	
Number exceeding 20 mSv		1		0.00	
Number exceeding 50 mSv		0		0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.515576	B	0.000000	C
Sample size		10288			
Statistic		Sample value		Expectation value	
Average		0.23		0.25	
Average over 0.5 mSv		1.69		1.96	
Number exceeding 0.5 mSv		1136		935.60	
Number exceeding 5 mSv		29		59.62	
Number exceeding 20 mSv		7		5.62	
Number exceeding 50 mSv		6		0.62	
Number exceeding 100 mSv		1		0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

Security							
<b>Annual doses</b>							
Parameters	A	0.152323	B	2.423260	C	0.000000	
Sample size		177			D	1.716160	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.01		0.02		0.01	0.03
Average from 0.1 mSv up		0.22		0.22		0.15	0.31
Number at or exceeding 0.1 mSv		10		9.61		4.59	16.60
Number exceeding 1 mSv		0		0.00		0.00	0.00
Number exceeding 2 mSv		0		0.00		0.00	0.00
Number exceeding 5 mSv		0		0.00		0.00	0.00
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.371612	B	0.155785	C	0.023587	
Sample size		230			D	2.192520	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.05		0.08		0.05	0.11
Average over 0.5 mSv		1.12		1.08		0.63	2.19
Number exceeding 0.5 mSv		6		4.62		1.62	10.61
Number exceeding 5 mSv		0		0.00		0.00	0.62
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Tradesmen</b>					
<b>Annual doses</b>					
Parameters	A 0.626393	B 0.034688	C 0.000000	D 1.787650	
Sample size	204				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.16	0.18	0.14	0.27	
Average from 0.1 mSv up	0.44	0.44	0.32	0.64	
Number at or exceeding 0.1 mSv	75	76.53	63.55	89.52	
Number exceeding 1 mSv	5	6.62	2.62	12.61	
Number exceeding 2 mSv	1	1.62	0.00	5.62	
Number exceeding 5 mSv	1	0.00	0.00	1.62	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.565603	B 0.017843	C 0.000000	D 1.309290	
Sample size	329				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.39	0.41	0.30	0.54	
Average over 0.5 mSv	1.62	1.77	1.32	2.49	
Number exceeding 0.5 mSv	64	57.58	44.59	70.57	
Number exceeding 5 mSv	3	2.62	0.00	7.62	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Well logger**

<b>Annual doses</b>							
Parameters	A	0.373865	B	0.266951	C	0.000000	
Sample size		2476			D	0.759456	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.41		0.48		0.44	0.51
Average from 0.1 mSv up		0.81		0.86		0.81	0.91
Number at or exceeding 0.1 mSv		1263		1331.49		1282.47	1379.49
Number exceeding 1 mSv		268		375.59		342.59	411.61
Number exceeding 2 mSv		106		148.61		126.61	171.61
Number exceeding 5 mSv		12		8.62		2.62	14.62
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.413932	B	0.074413	C	0.000000	
Sample size		3965			D	0.628150	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		1.01		0.99		0.93	1.06
Average over 0.5 mSv		2.25		2.60		2.47	2.74
Number exceeding 0.5 mSv		1673		1391.54		1331.52	1449.56
Number exceeding 5 mSv		150		189.61		165.62	216.61
Number exceeding 20 mSv		10		0.62		0.00	3.62
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Chiropractor</b>					
<b>Annual doses</b>					
Parameters	A 0.371896	B 0.005354	C 0.007429	D 2.402450	
Sample size	1100				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.05	0.06	0.04	0.11	
Average from 0.1 mSv up	0.65	0.55	0.35	1.21	
Number at or exceeding 0.1 mSv	81	80.61	64.61	98.60	
Number exceeding 1 mSv	9	8.62	2.62	14.62	
Number exceeding 2 mSv	4	3.62	0.62	8.62	
Number exceeding 5 mSv	2	0.62	0.00	3.62	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.276444	B 0.058014	C 0.013815	D 1.809350	
Sample size	1440				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.14	0.16	0.12	0.20	
Average over 0.5 mSv	2.08	2.23	1.74	2.91	
Number exceeding 0.5 mSv	84	74.61	58.61	92.61	
Number exceeding 5 mSv	8	7.62	2.62	13.62	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Dental assistant**

<b>Annual doses</b>					
Parameters	A 0.311821	B 0.000000	C 0.052358	D 3.095190	
Sample size	14059				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.01	0.04	0.04	0.05	
Average from 0.1 mSv up	0.35	0.29	0.22	0.59	
Number at or exceeding 0.1 mSv	494	492.62	452.62	536.61	
Number exceeding 1 mSv	7	15.62	8.62	24.62	
Number exceeding 2 mSv	6	6.62	2.62	12.62	
Number exceeding 5 mSv	3	1.62	0.00	4.62	
Number exceeding 20 mSv	1	0.00	0.00	1.62	
Number exceeding 50 mSv	0	0.00	0.00	0.62	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.668681	B 0.075133	C 0.000000	D 3.001570	
Sample size	21465				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.03	0.03	0.03	0.03	
Average over 0.5 mSv	1.39	0.85	0.77	0.95	
Number exceeding 0.5 mSv	294	103.62	85.62	124.62	
Number exceeding 5 mSv	7	0.00	0.00	0.62	
Number exceeding 20 mSv	3	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Dental hygienist</b>					
<b>Annual doses</b>					
Parameters	A 0.776221	B 0.000000	C 0.028645	D 4.030070	
Sample size	9619				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.01	0.03	0.03	0.03	
Average from 0.1 mSv up	0.24	0.15	0.14	0.16	
Number at or exceeding 0.1 mSv	291	274.62	244.62	306.64	
Number exceeding 1 mSv	8	0.00	0.00	1.62	
Number exceeding 2 mSv	2	0.00	0.00	0.00	
Number exceeding 5 mSv	1	0.00	0.00	0.00	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.364092	B 0.000000	C 0.031004	D 2.507390	
Sample size	12846				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.04	0.07	0.06	0.10	
Average over 0.5 mSv	1.59	2.11	1.53	4.18	
Number exceeding 0.5 mSv	191	179.62	152.62	204.65	
Number exceeding 5 mSv	5	11.62	5.62	19.65	
Number exceeding 20 mSv	1	1.62	0.00	4.62	
Number exceeding 50 mSv	1	0.00	0.00	1.62	
Number exceeding 100 mSv	1	0.00	0.00	0.62	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Dental therapist/nurse**

<b>Annual doses</b>					
Parameters	A	0.613546	B	0.141027	C
Sample size		154			D
Statistic		Sample value		Expectation value	
Average		0.04		0.05	0.03
Average from 0.1 mSv up		0.34		0.25	0.17
Number at or exceeding 0.1 mSv		20		17.60	10.61
Number exceeding 1 mSv		0		0.00	0.00
Number exceeding 2 mSv		0		0.00	0.00
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.148091	B	0.387210	C
Sample size		214			D
Statistic		Sample value		Expectation value	
Average		0.12		0.14	0.10
Average over 0.5 mSv		1.24		1.25	0.89
Number exceeding 0.5 mSv		15		13.61	7.62
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
Number exceeding 100 mSv		0		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Dentist**

<b>Annual doses</b>					
Parameters	A 0.000000	B 1.189900	C 0.064375	D 2.283540	
Sample size	7969				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.01	0.04	0.04	0.04	
Average from 0.1 mSv up	0.22	0.21	0.20	0.24	
Number at or exceeding 0.1 mSv	342	340.61	305.61	378.61	
Number exceeding 1 mSv	1	1.62	0.00	5.62	
Number exceeding 2 mSv	0	0.00	0.00	0.00	
Number exceeding 5 mSv	0	0.00	0.00	0.00	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.311935	B 0.000000	C 0.040181	D 2.334830	
Sample size	9860				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.08	0.12	0.09	0.27	
Average over 0.5 mSv	2.35	3.49	2.14	10.94	
Number exceeding 0.5 mSv	249	203.62	176.60	231.64	
Number exceeding 5 mSv	8	22.62	13.62	32.62	
Number exceeding 20 mSv	4	4.62	0.62	9.62	
Number exceeding 50 mSv	1	1.62	0.00	4.62	
Number exceeding 100 mSv	1	0.62	0.00	2.62	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Gynaecologist**

<b>Annual doses</b>					
Parameters	A	0.127832	B	4.395730	C
Sample size		13			D
Statistic		Sample value		Expectation value	
Average		0.02		0.02	0.00
Average from 0.1 mSv up		0.2		0.22	0.11
Number at or exceeding 0.1 mSv		1		0.61	0.00
Number exceeding 1 mSv		0		0.00	0.00
Number exceeding 2 mSv		0		0.00	0.00
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.000000	B	0.950709	C
Sample size		19			D
Statistic		Sample value		Expectation value	
Average		0.07		0.08	0.03
Average over 0.5 mSv		0.9			0.21
Number exceeding 0.5 mSv		1		0.62	0.00
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
Number exceeding 100 mSv		0		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Laboratory technician (medical)**

<b>Annual doses</b>					
Parameters	A 0.533357	B 0.199286	C 0.000000	D 2.062020	
Sample size	3934				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.11	0.09	0.08	0.10	
Average from 0.1 mSv up	0.52	0.35	0.32	0.38	
Number at or exceeding 0.1 mSv	853	805.57	754.55	851.60	
Number exceeding 1 mSv	100	45.62	33.62	58.62	
Number exceeding 2 mSv	41	8.62	3.62	14.62	
Number exceeding 5 mSv	7	0.00	0.00	0.62	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.441843	B 0.018948	C 0.000000	D 1.467280	
Sample size	7127				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.31	0.33	0.31	0.37	
Average over 0.5 mSv	2.05	2.25	2.05	2.47	
Number exceeding 0.5 mSv	937	855.59	806.55	910.64	
Number exceeding 5 mSv	76	81.62	64.62	99.62	
Number exceeding 20 mSv	5	4.62	0.62	10.62	
Number exceeding 50 mSv	0	0.00	0.00	0.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Medical physicist**

<b>Annual doses</b>								
Parameters	A	0.411365	B	0.133716	C	0.037951	D	2.242620
Sample size	438							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.06		0.09		0.07		0.11
Average from 0.1 mSv up		0.33		0.31		0.24		0.43
Number at or exceeding 0.1 mSv		82		81.58		66.59		97.59
Number exceeding 1 mSv		4		3.62		0.62		8.62
Number exceeding 2 mSv		2		0.62		0.00		3.62
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.527130	B	0.000000	C	0.000000	D	1.592210
Sample size	597							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.32		0.28		0.21		0.43
Average over 0.5 mSv		1.78		1.89		1.33		3.14
Number exceeding 0.5 mSv		88		64.60		49.60		80.59
Number exceeding 5 mSv		3		3.62		0.62		8.62
Number exceeding 20 mSv		1		0.00		0.00		1.62
Number exceeding 50 mSv		1		0.00		0.00		0.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Medical radiation technologist**

<b>Annual doses</b>					
Parameters	A 0.544714	B 0.000566	C 0.003329	D 2.015490	
Sample size	13612				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.12	0.14	0.13	0.15	
Average from 0.1 mSv up	0.48	0.48	0.45	0.53	
Number at or exceeding 0.1 mSv	3299	3300.56	3203.57	3397.59	
Number exceeding 1 mSv	254	298.62	265.62	332.62	
Number exceeding 2 mSv	116	112.62	92.62	136.62	
Number exceeding 5 mSv	13	25.62	15.62	35.65	
Number exceeding 20 mSv	3	1.62	0.00	4.62	
Number exceeding 50 mSv	1	0.00	0.00	0.62	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.488841	B 0.022894	C 0.000000	D 1.270380	
Sample size	16699				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.43	0.45	0.43	0.47	
Average over 0.5 mSv	1.83	2.13	2.02	2.23	
Number exceeding 0.5 mSv	3397	2869.58	2782.58	2960.63	
Number exceeding 5 mSv	207	249.62	220.60	280.65	
Number exceeding 20 mSv	16	11.62	5.62	18.62	
Number exceeding 50 mSv	2	0.00	0.00	0.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Nuclear medicine technologist**

<b>Annual doses</b>					
Parameters	A	0.097168	B	0.436302	C
Sample size		1818			
Statistic		Sample value		Expectation value	
Average		1.6		1.61	
Average from 0.1 mSv up		1.98		1.99	
Number at or exceeding 0.1 mSv		1466		1463.42	
Number exceeding 1 mSv		974		988.99	
Number exceeding 2 mSv		645		626.54	
Number exceeding 5 mSv		65		64.62	
Number exceeding 20 mSv		0		0.00	
Number exceeding 50 mSv		0		0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.212546	B	0.056633	C
Sample size		2278			
Statistic		Sample value		Expectation value	
Average		6.41		6.86	
Average over 0.5 mSv		8.47		9.60	
Number exceeding 0.5 mSv		1719		1616.45	
Number exceeding 5 mSv		1012		969.52	
Number exceeding 20 mSv		107		207.60	
Number exceeding 50 mSv		5		0.62	
Number exceeding 100 mSv		4		0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Nurse</b>							
<b>Annual doses</b>							
Parameters	A	0.762450	B	0.267229	C	0.000000	
Sample size		7100			D	2.508990	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.1		0.08		0.08	0.08
Average from 0.1 mSv up		0.42		0.24		0.23	0.25
Number at or exceeding 0.1 mSv		1628		1633.57		1559.57	1705.56
Number exceeding 1 mSv		98		18.62		11.62	27.62
Number exceeding 2 mSv		31		0.62		0.00	3.62
Number exceeding 5 mSv		6		0.00		0.00	0.00
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.375171	B	0.098391	C	0.000000	
Sample size		10293			D	1.247570	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.32		0.34		0.32	0.36
Average over 0.5 mSv		1.64		1.89		1.79	1.98
Number exceeding 0.5 mSv		1763		1538.59		1467.59	1604.61
Number exceeding 5 mSv		70		97.62		79.62	116.62
Number exceeding 20 mSv		4		0.00		0.00	0.62
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Physician</b>					
<b>Annual doses</b>					
Parameters	A 0.437697	B 0.036055	C 0.000000	D 1.539740	
Sample size	2942				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.23	0.26	0.23	0.30	
Average from 0.1 mSv up	0.77	0.81	0.71	0.92	
Number at or exceeding 0.1 mSv	891	895.55	844.55	943.54	
Number exceeding 1 mSv	152	168.61	144.59	194.63	
Number exceeding 2 mSv	60	80.62	62.62	99.62	
Number exceeding 5 mSv	16	21.62	13.62	31.62	
Number exceeding 20 mSv	3	0.00	0.00	1.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.339331	B 0.044250	C 0.000000	D 0.935658	
Sample size	3905				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.74	0.82	0.75	0.90	
Average over 0.5 mSv	2.71	3.25	3.00	3.53	
Number exceeding 0.5 mSv	1001	912.57	864.57	965.56	
Number exceeding 5 mSv	114	171.61	147.62	197.64	
Number exceeding 20 mSv	16	8.62	3.62	14.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Radiation therapist**

<b>Annual doses</b>					
Parameters	A 0.577251	B 0.000000	C 0.033987	D 2.223410	
Sample size	1781				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.1	0.13	0.12	0.16	
Average from 0.1 mSv up	0.34	0.32	0.28	0.41	
Number at or exceeding 0.1 mSv	544	545.55	506.55	581.54	
Number exceeding 1 mSv	14	24.62	15.62	35.62	
Number exceeding 2 mSv	9	7.62	2.62	13.62	
Number exceeding 5 mSv	4	0.62	0.00	3.62	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.589790	B 0.000000	C 0.000000	D 1.187460	
Sample size	2243				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.53	0.56	0.48	0.67	
Average over 0.5 mSv	1.75	2.10	1.81	2.62	
Number exceeding 0.5 mSv	587	484.57	445.58	522.57	
Number exceeding 5 mSv	26	36.12	25.60	48.62	
Number exceeding 20 mSv	4	2.62	0.00	6.62	
Number exceeding 50 mSv	1	0.00	0.00	1.62	
Number exceeding 100 mSv	1	0.00	0.00	0.62	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Radiologist (diagnostic)**

Parameters	A	0.468925	B	0.033780	C	0.000000	D	1.702470
<b>Annual doses</b>								
Sample size		2198						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.17		0.19		0.17		0.23
Average from 0.1 mSv up		0.63		0.65		0.56		0.76
Number at or exceeding 0.1 mSv		598		599.56		558.54		638.55
Number exceeding 1 mSv		62		89.61		71.62		108.61
Number exceeding 2 mSv		32		38.62		27.62		52.64
Number exceeding 5 mSv		10		8.62		3.62		15.62
Number exceeding 20 mSv		0		0.00		0.00		0.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.430867	B	0.011010	C	0.000000	D	1.095690
Sample size		2802						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.72		0.75		0.65		0.87
Average over 0.5 mSv		2.79		3.23		2.80		3.73
Number exceeding 0.5 mSv		671		587.57		546.58		631.57
Number exceeding 5 mSv		79		90.62		72.62		110.61
Number exceeding 20 mSv		14		12.62		6.62		19.62
Number exceeding 50 mSv		1		0.62		0.00		3.62
Number exceeding 100 mSv		0		0.00		0.00		0.62

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Radiologist (therapeutic)**

Parameters	A	0.281952	B	0.087320	C	0.047379	D	1.955080
<b>Annual doses</b>								
Sample size	279							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.11		0.13		0.09		0.20
Average from 0.1 mSv up		0.51		0.49		0.29		0.81
Number at or exceeding 0.1 mSv		59		58.57		46.58		73.56
Number exceeding 1 mSv		7		5.62		1.62		10.62
Number exceeding 2 mSv		2		2.62		0.00		6.62
Number exceeding 5 mSv		2		0.00		0.00		2.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.431326	B	0.019380	C	0.003126	D	1.345930
Sample size	390							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.41		0.42		0.29		0.62
Average over 0.5 mSv		2.22		2.39		1.65		3.62
Number exceeding 0.5 mSv		64		56.59		42.60		70.58
Number exceeding 5 mSv		7		5.62		1.62		11.62
Number exceeding 20 mSv		1		0.00		0.00		1.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Veterinarian**

<b>Annual doses</b>							
Parameters	A	0.927848	B	1.477960	C	0.000000	
Sample size		3314			D	3.270980	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.03		0.04		0.04	0.05
Average from 0.1 mSv up		0.29		0.16		0.15	0.16
Number at or exceeding 0.1 mSv		344		364.60		331.58	396.60
Number exceeding 1 mSv		9		0.00		0.00	0.00
Number exceeding 2 mSv		3		0.00		0.00	0.00
Number exceeding 5 mSv		0		0.00		0.00	0.00
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.372721	B	0.109590	C	0.012178	
Sample size		5236			D	1.704250	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		0.14		0.16		0.15	0.18
Average over 0.5 mSv		1.37		1.52		1.39	1.66
Number exceeding 0.5 mSv		413		362.61		327.58	399.61
Number exceeding 5 mSv		9		10.62		4.62	17.62
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Veterinary technician**

<b>Annual doses</b>								
Parameters	A	0.413873	B	0.126383	C	0.030255	D	2.592840
Sample size		3493						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.03		0.05		0.05		0.06
Average from 0.1 mSv up		0.28		0.28		0.24		0.32
Number at or exceeding 0.1 mSv		331		331.60		299.60		368.60
Number exceeding 1 mSv		8		11.62		5.62		19.62
Number exceeding 2 mSv		2		2.62		0.00		6.62
Number exceeding 5 mSv		1		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.377299	B	0.142885	C	0.012776	D	1.942370
Sample size		5852						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.08		0.10		0.10		0.11
Average over 0.5 mSv		1.15		1.29		1.18		1.42
Number exceeding 0.5 mSv		287		244.62		210.62		273.61
Number exceeding 5 mSv		4		2.62		0.00		6.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005**

Ward aid/orderly

<b>Annual doses</b>								
Parameters	A	0.159281	B	0.296841	C	0.045940	D	1.931370
Sample size		1070						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.06		0.09		0.07		0.10
Average from 0.1 mSv up		0.44		0.43		0.34		0.53
Number at or exceeding 0.1 mSv		145		143.59		125.57		164.59
Number exceeding 1 mSv		13		14.62		7.62		23.62
Number exceeding 2 mSv		5		4.62		0.62		9.62
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.418260	B	0.033609	C	0.000000	D	1.599630
Sample size		2109						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.22		0.24		0.20		0.28
Average over 0.5 mSv		1.88		2.01		1.71		2.41
Number exceeding 0.5 mSv		201		192.60		168.60		220.60
Number exceeding 5 mSv		18		15.62		7.62		22.62
Number exceeding 20 mSv		0		0.00		0.00		1.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - administration**

<b>Annual doses</b>					
Parameters	A 0.147185	B 0.099556	C 0.000000	D 1.622460	
Sample size	3955				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.17	0.18	0.15	0.21	
Average from 0.1 mSv up	1.73	1.74	1.52	1.99	
Number at or exceeding 0.1 mSv	392	392.60	354.60	431.62	
Number exceeding 1 mSv	157	168.61	144.62	195.61	
Number exceeding 2 mSv	109	107.62	88.62	126.62	
Number exceeding 5 mSv	38	35.62	25.62	48.62	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.170292	B 0.030895	C 0.000000	D 1.416470	
Sample size	6809				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.55	0.56	0.50	0.64	
Average over 0.5 mSv	5.4	5.79	5.21	6.37	
Number exceeding 0.5 mSv	683	639.60	595.60	689.60	
Number exceeding 5 mSv	216	222.62	193.59	250.62	
Number exceeding 20 mSv	38	36.62	24.62	48.62	
Number exceeding 50 mSv	0	0.62	0.00	2.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Reactor - chemical and radiation control**

<b>Annual doses</b>					
Parameters	A	0.188800	B	0.146864	C
Sample size	668				
Statistic		Sample value		Expectation value	
Average		2.11		2.03	
Average from 0.1 mSv up		3.19		3.07	
Number at or exceeding 0.1 mSv		441		440.46	
Number exceeding 1 mSv		278		290.52	
Number exceeding 2 mSv		218		219.54	
Number exceeding 5 mSv		119		96.59	
Number exceeding 20 mSv		0		0.00	
Number exceeding 50 mSv		0		0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.199344	B	0.044509	C
Sample size	860				
Statistic		Sample value		Expectation value	
Average		5.87		5.71	
Average over 0.5 mSv		8.89		9.66	
Number exceeding 0.5 mSv		565		503.48	
Number exceeding 5 mSv		285		282.54	
Number exceeding 20 mSv		73		70.60	
Number exceeding 50 mSv		6		0.62	
Number exceeding 100 mSv		0		0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Reactor - construction</b>					
<b>Annual doses</b>					
Parameters	A 0.093711	B 0.103269	C 0.000000	D 0.437816	
Sample size	1183				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.87	1.75	1.56	1.95	
Average from 0.1 mSv up	4.42	4.25	3.87	4.65	
Number at or exceeding 0.1 mSv	501	485.52	453.53	521.52	
Number exceeding 1 mSv	347	347.55	317.56	379.55	
Number exceeding 2 mSv	296	282.57	253.57	311.56	
Number exceeding 5 mSv	180	158.59	138.60	181.59	
Number exceeding 20 mSv	0	2.62	0.00	6.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.159255	B 0.043997	C 0.000000	D 0.384278	
Sample size	3269				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	3.72	3.22	3.00	3.44	
Average over 0.5 mSv	7.93	8.34	7.85	8.81	
Number exceeding 0.5 mSv	1525	1251.53	1194.53	1303.53	
Number exceeding 5 mSv	701	636.58	592.55	679.57	
Number exceeding 20 mSv	153	132.62	111.62	154.61	
Number exceeding 50 mSv	2	1.62	0.00	5.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - control technician**

<b>Annual doses</b>					
Parameters	A 0.141329	B 0.195675	C 0.000000	D 0.399648	
Sample size	268				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.02	1.01	0.81	1.24	
Average from 0.1 mSv up	2.23	2.18	1.81	2.56	
Number at or exceeding 0.1 mSv	122	124.51	107.53	139.49	
Number exceeding 1 mSv	66	72.56	58.57	87.54	
Number exceeding 2 mSv	49	48.58	37.59	61.57	
Number exceeding 5 mSv	16	13.61	7.62	21.60	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.133798	B 0.055912	C 0.000000	D 0.339200	
Sample size	390				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	2.82	3.07	2.48	3.65	
Average over 0.5 mSv	6.96	7.78	6.53	8.93	
Number exceeding 0.5 mSv	157	151.53	133.51	171.51	
Number exceeding 5 mSv	68	77.58	62.58	93.57	
Number exceeding 20 mSv	15	11.62	5.62	18.61	
Number exceeding 50 mSv	0	0.00	0.00	0.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - electrical maintenance**

<b>Annual doses</b>					
Parameters	A 0.178378	B 0.184183	C 0.000000	D 0.451344	
Sample size	1457				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1	0.97	0.87	1.06	
Average from 0.1 mSv up	2.06	2.00	1.84	2.17	
Number at or exceeding 0.1 mSv	706	699.51	658.49	736.52	
Number exceeding 1 mSv	393	382.06	351.57	414.55	
Number exceeding 2 mSv	254	251.58	223.59	279.60	
Number exceeding 5 mSv	80	70.61	54.59	87.61	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.200344	B 0.057750	C 0.000000	D 0.221775	
Sample size	2114				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	3.08	3.02	2.81	3.26	
Average over 0.5 mSv	6.18	6.57	6.16	6.98	
Number exceeding 0.5 mSv	1045	960.51	915.52	1003.51	
Number exceeding 5 mSv	392	427.57	391.58	465.57	
Number exceeding 20 mSv	66	50.62	37.62	64.62	
Number exceeding 50 mSv	0	0.00	0.00	0.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - fuel handling**

<b>Annual doses</b>								
Parameters	A	0.168758	B	0.1222594	C	0.010494	D	-0.491656
Sample size	128							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		4.33		4.31		3.55		5.16
Average from 0.1 mSv up		5.18		5.12		4.30		6.04
Number at or exceeding 0.1 mSv		107		106.42		98.43		114.40
Number exceeding 1 mSv		76		82.46		71.49		92.44
Number exceeding 2 mSv		68		70.49		59.51		81.47
Number exceeding 5 mSv		48		43.54		34.53		54.52
Number exceeding 20 mSv		0		0.62		0.00		2.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.244457	B	0.041356	C	0.000000	D	-0.216461
Sample size	248							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		6.27		6.12		5.05		7.41
Average over 0.5 mSv		9.31		9.50		8.04		11.24
Number exceeding 0.5 mSv		166		158.46		144.45		174.45
Number exceeding 5 mSv		100		86.54		72.55		101.52
Number exceeding 20 mSv		18		21.60		13.61		31.59
Number exceeding 50 mSv		0		0.00		0.00		1.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - general maintenance**

<b>Annual doses</b>					
Parameters	A 0.107557	B 0.117505	C 0.000788	D 0.616403	
Sample size	1536				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.17	1.16	1.04	1.29	
Average from 0.1 mSv up	3.27	3.23	2.95	3.52	
Number at or exceeding 0.1 mSv	547	549.54	510.54	585.53	
Number exceeding 1 mSv	337	354.57	323.57	386.56	
Number exceeding 2 mSv	267	272.58	241.59	300.58	
Number exceeding 5 mSv	140	129.60	107.61	149.63	
Number exceeding 20 mSv	0	0.62	0.00	2.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.182288	B 0.027265	C 0.000000	D 0.724469	
Sample size	2604				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	2.74	2.38	2.13	2.64	
Average over 0.5 mSv	8.18	8.68	7.95	9.50	
Number exceeding 0.5 mSv	865	701.56	656.56	747.55	
Number exceeding 5 mSv	360	322.59	293.57	356.62	
Number exceeding 20 mSv	108	89.62	73.62	108.61	
Number exceeding 50 mSv	0	5.62	1.62	11.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - health physics**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.336862	C	0.015271	D	0.625869
Sample size		83						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.49		0.51		0.30		0.76
Average from 0.1 mSv up		1.71		1.60		1.08		2.24
Number at or exceeding 0.1 mSv		24		24.55		16.58		33.52
Number exceeding 1 mSv		13		13.58		7.60		20.56
Number exceeding 2 mSv		9		7.60		2.62		12.59
Number exceeding 5 mSv		2		0.62		0.00		2.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.093814	B	0.064074	C	0.022125	D	0.770588
Sample size		121						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.57		1.54		0.90		2.33
Average over 0.5 mSv		6.42		6.11		4.31		8.81
Number exceeding 0.5 mSv		29		29.56		20.58		38.55
Number exceeding 5 mSv		14		12.60		6.61		19.58
Number exceeding 20 mSv		1		0.62		0.00		3.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - industrial radiographer**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.210936	C	0.025386	D	-0.353464
Sample size		67						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		3.38		2.91		2.17		3.72
Average from 0.1 mSv up		4.44		4.00		3.16		4.93
Number at or exceeding 0.1 mSv		51		48.44		40.47		54.42
Number exceeding 1 mSv		42		37.49		29.51		45.46
Number exceeding 2 mSv		37		31.51		23.54		39.48
Number exceeding 5 mSv		22		15.57		9.59		22.54
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.264338	B	0.076642	C	0.000000	D	-0.502559
Sample size		179						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		5.14		5.28		4.40		6.19
Average over 0.5 mSv		6.67		7.07		6.07		8.13
Number exceeding 0.5 mSv		137		132.44		120.46		143.43
Number exceeding 5 mSv		64		67.53		55.52		80.51
Number exceeding 20 mSv		4		5.62		1.62		10.61
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - mechanical maintenance**

**Annual doses**

Parameters	A 0.119956	B 0.164676	C 0.000000	D -0.067561
Sample size	1767			
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average	2.23	2.24	2.10	2.38
Average from 0.1 mSv up	3.54	3.54	3.34	3.75
Number at or exceeding 0.1 mSv	1116	1114.47	1076.45	1154.46
Number exceeding 1 mSv	777	813.51	772.52	855.53
Number exceeding 2 mSv	638	643.53	609.54	684.53
Number exceeding 5 mSv	307	302.58	272.59	332.58
Number exceeding 20 mSv	0	0.00	0.00	1.62
Number exceeding 50 mSv	0	0.00	0.00	0.00

**Doses accumulating over 5 year block starting 2001**

Parameters	A 0.176606	B 0.045399	C 0.000000	D 0.010524
Sample size	3116			
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average	5.32	5.15	4.84	5.47
Average over 0.5 mSv	8.88	9.56	9.08	10.03
Number exceeding 0.5 mSv	1859	1666.49	1612.50	1719.51
Number exceeding 5 mSv	944	938.55	888.55	990.55
Number exceeding 20 mSv	241	229.61	201.58	257.60
Number exceeding 50 mSv	1	3.62	0.62	8.62
Number exceeding 100 mSv	0	0.00	0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - operations**

<b>Annual doses</b>					
Parameters	A 0.186961	B 0.145448	C 0.000000	D 0.407083	
Sample size	2437				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.18	1.21	1.13	1.31	
Average from 0.1 mSv up	2.32	2.38	2.25	2.54	
Number at or exceeding 0.1 mSv	1245	1236.50	1191.50	1283.52	
Number exceeding 1 mSv	690	704.55	663.56	747.57	
Number exceeding 2 mSv	460	496.57	459.58	536.57	
Number exceeding 5 mSv	154	183.61	160.61	209.60	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.235926	B 0.039941	C 0.000000	D 0.021087	
Sample size	2839				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	4.4	4.71	4.40	5.02	
Average over 0.5 mSv	7.64	8.52	8.05	9.00	
Number exceeding 0.5 mSv	1624	1552.49	1501.49	1601.51	
Number exceeding 5 mSv	748	776.56	726.56	824.58	
Number exceeding 20 mSv	117	180.11	155.61	205.61	
Number exceeding 50 mSv	20	3.62	0.62	8.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Reactor - scientific/professional</b>					
<b>Annual doses</b>					
Parameters	A 0.139637	B 0.099091	C 0.003456	D 1.213210	
Sample size	2564				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.43	0.43	0.38	0.49	
Average from 0.1 mSv up	2.2	2.18	1.93	2.44	
Number at or exceeding 0.1 mSv	501	500.58	460.55	539.57	
Number exceeding 1 mSv	227	242.60	211.60	270.60	
Number exceeding 2 mSv	171	168.61	143.61	194.61	
Number exceeding 5 mSv	75	67.62	51.62	83.62	
Number exceeding 20 mSv	0	0.00	0.00	1.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.161408	B 0.042673	C 0.000000	D 0.879092	
Sample size	4365				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.38	1.41	1.29	1.54	
Average over 0.5 mSv	6.24	6.44	6.02	6.94	
Number exceeding 0.5 mSv	949	936.57	881.58	987.59	
Number exceeding 5 mSv	368	384.60	345.61	423.60	
Number exceeding 20 mSv	59	57.62	42.62	73.65	
Number exceeding 50 mSv	0	0.00	0.00	1.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Reactor - training**

Parameters	A	0.129145	B	0.138987	C	0.036839	D	1.291870
Sample size	89							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average	0.32		0.33		0.16		0.62	
Average from 0.1 mSv up	1.2		1.16		0.55		2.03	
Number at or exceeding 0.1 mSv	24		23.56		15.58		31.54	
Number exceeding 1 mSv	8		6.61		2.59		12.59	
Number exceeding 2 mSv	3		3.61		0.62		8.60	
Number exceeding 5 mSv	3		0.62		0.00		3.61	
Number exceeding 20 mSv	0		0.00		0.00		0.00	
Number exceeding 50 mSv	0		0.00		0.00		0.00	
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.188403	B	0.039691	C	0.010253	D	1.033950
Sample size	134							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average	1.02		1.02		0.55		1.66	
Average over 0.5 mSv	5.14		5.37		3.23		8.47	
Number exceeding 0.5 mSv	26		23.58		15.60		33.56	
Number exceeding 5 mSv	10		7.61		2.62		13.60	
Number exceeding 20 mSv	1		0.62		0.00		3.62	
Number exceeding 50 mSv	0		0.00		0.00		0.00	
Number exceeding 100 mSv	0		0.00		0.00		0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Reactor - visitor</b>					
<b>Annual doses</b>					
Parameters	A 0.119977	B 0.115820	C 0.000000	D 0.740986	
Sample size	6487				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.93	0.94	0.88	0.99	
Average from 0.1 mSv up	2.82	2.92	2.78	3.05	
Number at or exceeding 0.1 mSv	2134	2072.55	2002.52	2147.59	
Number exceeding 1 mSv	1220	1269.58	1209.55	1337.60	
Number exceeding 2 mSv	909	944.59	890.59	999.61	
Number exceeding 5 mSv	414	420.61	384.61	463.61	
Number exceeding 20 mSv	1	1.62	0.00	4.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.130590	B 0.045967	C 0.000000	D 0.884833	
Sample size	15295				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.45	1.45	1.38	1.52	
Average over 0.5 mSv	6.08	6.92	6.68	7.16	
Number exceeding 0.5 mSv	3622	3159.57	3060.57	3251.57	
Number exceeding 5 mSv	1338	1416.60	1346.60	1484.60	
Number exceeding 20 mSv	211	214.62	187.62	242.65	
Number exceeding 50 mSv	6	1.62	0.00	4.62	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Administration**

<b>Annual doses</b>								
Parameters	A	0.176084	B	0.139948	C	0.152656	D	2.014650
Sample size	39							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.15		0.16		0.10		0.35
Average from 0.1 mSv up		0.31		0.26		0.15		0.62
Number at or exceeding 0.1 mSv		19		18.51		13.54		24.47
Number exceeding 1 mSv		1		0.62		0.00		2.61
Number exceeding 2 mSv		1		0.00		0.00		1.61
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.042809	B	0.848283	C	0.060590	D	-1.009040
Sample size	47							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.35		1.35		1.08		1.62
Average over 0.5 mSv		1.63		1.68		1.43		1.97
Number exceeding 0.5 mSv		38		35.44		29.47		40.43
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Control technicians**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.118509	C	0.120048	D	1.465250
Sample size	29							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.39		0.36		0.10		1.02
Average from 0.1 mSv up		0.94		0.77		0.17		2.26
Number at or exceeding 0.1 mSv		12		11.53		6.57		16.48
Number exceeding 1 mSv		2		1.61		0.00		4.59
Number exceeding 2 mSv		2		0.62		0.00		3.59
Number exceeding 5 mSv		1		0.00		0.00		1.61
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.544796	B	0.131662	C	0.000000	D	-0.438480
Sample size	29							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.96		2.35		1.53		3.42
Average over 0.5 mSv		2.52		2.98		2.07		4.08
Number exceeding 0.5 mSv		22		21.44		17.45		26.40
Number exceeding 5 mSv		2		3.59		0.62		7.56
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Designers**

<b>Annual doses</b>								
Parameters	A	0.177363	B	0.124345	C	0.051440	D	1.004030
Sample size		17						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.59		0.55		0.12		1.58
Average from 0.1 mSv up		1.26		1.11		0.26		3.20
Number at or exceeding 0.1 mSv		8		7.51		3.57		11.46
Number exceeding 1 mSv		2		1.60		0.00		5.54
Number exceeding 2 mSv		2		0.62		0.00		3.57
Number exceeding 5 mSv		1		0.00		0.00		1.60
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.459194	B	0.013498	C	0.569637	D	0.031606
Sample size		19						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		4.79		4.34		1.99		9.19
Average over 0.5 mSv		5.36		4.72		2.19		9.93
Number exceeding 0.5 mSv		17		17.40		14.44		18.38
Number exceeding 5 mSv		3		3.58		0.62		7.53
Number exceeding 20 mSv		2		0.62		0.00		2.59
Number exceeding 50 mSv		0		0.00		0.00		0.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - General Maintenance**

Parameters	A	0.232742	B	0.262221	C	0.033320	D	0.241793
<b>Annual doses</b>								
Sample size		19						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.01		0.98		0.48		1.72
Average from 0.1 mSv up		1.37		1.33		0.65		2.24
Number at or exceeding 0.1 mSv		14		13.45		9.50		16.41
Number exceeding 1 mSv		5		5.55		1.60		9.50
Number exceeding 2 mSv		4		2.59		0.62		6.54
Number exceeding 5 mSv		1		0.00		0.00		1.60
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.181356	B	0.098426	C	0.028381	D	-0.532424
Sample size		20						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		5.27		5.26		2.86		7.93
Average over 0.5 mSv		6.57		7.00		4.20		10.10
Number exceeding 0.5 mSv		16		14.44		10.49		17.43
Number exceeding 5 mSv		7		7.53		3.58		12.47
Number exceeding 20 mSv		0		0.00		0.00		1.60
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Machinists**

Parameters	A	0.000000	B	0.077400	C	0.117464	D	1.772960
Sample size	28							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.28		0.22		0.07		0.98
Average from 0.1 mSv up		0.99		0.61		0.13		3.12
Number at or exceeding 0.1 mSv		8		7.56		3.59		12.51
Number exceeding 1 mSv		1		0.62		0.00		3.59
Number exceeding 2 mSv		1		0.62		0.00		2.60
Number exceeding 5 mSv		1		0.00		0.00		1.61
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.482676	B	0.007715	C	0.000000	D	0.410089
Sample size	31							
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.97		2.09		0.77		5.30
Average over 0.5 mSv		3.15		4.22		1.74		10.93
Number exceeding 0.5 mSv		19		14.51		8.56		19.47
Number exceeding 5 mSv		1		2.60		0.00		6.57
Number exceeding 20 mSv		1		0.00		0.00		2.60
Number exceeding 50 mSv		0		0.00		0.00		0.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Mechanical technicians**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.266430	C	0.083212	D	0.470538
Sample size		78						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.07		0.93		0.62		1.30
Average from 0.1 mSv up		1.6		1.40		1.00		1.95
Number at or exceeding 0.1 mSv		52		50.46		42.49		58.44
Number exceeding 1 mSv		24		19.56		12.58		26.54
Number exceeding 2 mSv		16		12.58		6.60		19.56
Number exceeding 5 mSv		5		2.62		0.00		5.61
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.362753	B	0.051584	C	0.000000	D	-0.521980
Sample size		84						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		5.66		5.62		4.15		7.27
Average over 0.5 mSv		6.67		7.28		5.63		9.24
Number exceeding 0.5 mSv		71		64.43		56.46		71.41
Number exceeding 5 mSv		31		30.53		21.56		39.51
Number exceeding 20 mSv		6		3.61		0.62		8.60
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Accelerators - Operations</b>							
<b>Annual doses</b>							
Parameters	A	0.094238	B	0.387674	C	0.000000	
Sample size		42			D	-0.646826	
Statistic		Sample value		Expectation value		Upper 95% CL	
Average		1.96		1.94		1.41	2.53
Average from 0.1 mSv up		2.5		2.43		1.87	3.04
Number at or exceeding 0.1 mSv		33		33.43		27.46	37.40
Number exceeding 1 mSv		27		24.48		18.51	30.44
Number exceeding 2 mSv		22		17.52		10.56	23.49
Number exceeding 5 mSv		3		2.61		0.00	6.59
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.227187	B	0.099194	C	0.000000	
Sample size		44			D	-0.886123	
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		6.78		6.67		5.01	8.72
Average over 0.5 mSv		7.64		7.91		6.00	9.93
Number exceeding 0.5 mSv		39		36.42		31.45	40.40
Number exceeding 5 mSv		21		21.50		16.53	28.46
Number exceeding 20 mSv		3		0.62		0.00	4.60
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Accelerators - Scientific/professional**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.210885	C	0.129268	D	1.449880
Sample size		322						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.27		0.29		0.22		0.38
Average from 0.1 mSv up		0.58		0.57		0.42		0.75
Number at or exceeding 0.1 mSv		147		146.51		127.53		162.52
Number exceeding 1 mSv		21		19.61		11.62		28.60
Number exceeding 2 mSv		10		10.62		4.62		18.61
Number exceeding 5 mSv		2		1.62		0.00		4.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.699751	B	0.011986	C	0.000000	D	-0.055087
Sample size		339						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		2.13		2.47		2.04		2.99
Average over 0.5 mSv		2.63		3.41		2.87		4.16
Number exceeding 0.5 mSv		270		236.45		219.46		253.44
Number exceeding 5 mSv		19		43.59		31.60		56.58
Number exceeding 20 mSv		5		3.62		0.62		7.62
Number exceeding 50 mSv		0		0.00		0.00		0.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Accelerators - Visitors**

<b>Annual doses</b>								
Parameters	A	0.268492	B	0.181352	C	0.117311	D	2.327640
Sample size		98						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.08		0.11		0.09		0.16
Average from 0.1 mSv up		0.24		0.22		0.15		0.38
Number at or exceeding 0.1 mSv		31		30.55		22.54		39.55
Number exceeding 1 mSv		1		0.62		0.00		2.62
Number exceeding 2 mSv		0		0.00		0.00		0.62
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.174891	B	0.438983	C	0.003941	D	0.224790
Sample size		113						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.67		0.68		0.51		0.87
Average over 0.5 mSv		1.55		1.65		1.37		2.00
Number exceeding 0.5 mSv		46		41.53		32.55		52.51
Number exceeding 5 mSv		1		0.00		0.00		1.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)****Dose distribution by job category as of the end of 2005****Uranium mine electrician**

<b>Annual doses</b>								
Parameters	A	0.562422	B	9.016540	C	0.000154	D	9.095410
Sample size		1						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0		0.00		0.00		0.00
Average from 0.1 mSv up								
Number at or exceeding 0.1 mSv		0		0.00		0.00		0.00
Number exceeding 1 mSv		0		0.00		0.00		0.00
Number exceeding 2 mSv		0		0.00		0.00		0.00
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.877155	B	3.495470	C	0.000014	D	9.525970
Sample size		4						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0		0.00		0.00		0.00
Average over 0.5 mSv								
Number exceeding 0.5 mSv		0		0.00		0.00		0.00
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

<b>Uranium mine mill maintenance</b>							
<b>Annual doses</b>							
Parameters	A	0.340397	B	0.575198	C	0.000000	
Sample size		310					
Statistic		Sample value		Expectation value		Upper 95% CL	
Average		0.66		0.67		0.59	0.76
Average from 0.1 mSv up		0.89		0.89		0.80	0.99
Number at or exceeding 0.1 mSv		231		230.44		215.45	245.43
Number exceeding 1 mSv		73		78.06		64.55	93.55
Number exceeding 2 mSv		25		21.61		13.61	30.60
Number exceeding 5 mSv		0		0.00		0.00	0.62
Number exceeding 20 mSv		0		0.00		0.00	0.00
Number exceeding 50 mSv		0		0.00		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>							
Parameters	A	0.162420	B	0.147516	C	0.016256	
Sample size		506					
Statistic		Sample value		Expectation value		Lower 95% CL	Upper 95% CL
Average		2.32		2.32		2.04	2.61
Average over 0.5 mSv		3.97		4.13		3.75	4.51
Number exceeding 0.5 mSv		292		277.49		257.47	300.48
Number exceeding 5 mSv		90		87.58		70.59	104.57
Number exceeding 20 mSv		0		0.00		0.00	0.62
Number exceeding 50 mSv		0		0.00		0.00	0.00
Number exceeding 100 mSv		0		0.00		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine mill worker**

<b>Annual doses</b>								
Parameters	A	0.000000	B	0.772270	C	0.022408	D	-0.650583
Sample size		285						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.99		1.08		0.97		1.19
Average from 0.1 mSv up		1.32		1.36		1.24		1.48
Number at or exceeding 0.1 mSv		214		225.43		211.44		238.42
Number exceeding 1 mSv		115		130.51		113.50		146.50
Number exceeding 2 mSv		47		53.58		40.59		66.57
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.133040	B	0.105172	C	0.005297	D	-0.319262
Sample size		467						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		4.33		4.30		3.81		4.80
Average over 0.5 mSv		6.67		6.62		6.07		7.24
Number exceeding 0.5 mSv		301		299.46		279.48		318.45
Number exceeding 5 mSv		158		156.54		137.55		177.53
Number exceeding 20 mSv		4		5.62		1.62		11.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine nurse**

<b>Annual doses</b>								
Parameters	A	0.000008	B	3.022920	C	0.000000	D	1.082650
Sample size		23						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.03		0.02		0.00		0.06
Average from 0.1 mSv up		0.35		0.25				
Number at or exceeding 0.1 mSv		2		1.61		0.00		4.58
Number exceeding 1 mSv		0		0.00		0.00		0.00
Number exceeding 2 mSv		0		0.00		0.00		0.00
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.000000	B	0.476801	C	0.046156	D	0.962567
Sample size		37						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.23		0.25		0.10		0.46
Average over 0.5 mSv		1.49		1.41		0.76		2.44
Number exceeding 0.5 mSv		5		4.59		0.62		8.57
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine office staff**

<b>Annual doses</b>								
Parameters	A	0.719588	B	0.033061	C	0.000000	D	2.246420
Sample size		286						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.09		0.11		0.09		0.14
Average from 0.1 mSv up		0.31		0.30		0.24		0.40
Number at or exceeding 0.1 mSv		83		82.55		67.57		97.54
Number exceeding 1 mSv		1		2.62		0.00		6.62
Number exceeding 2 mSv		1		0.62		0.00		2.62
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.342562	B	0.304565	C	0.015377	D	1.110060
Sample size		495						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.27		0.29		0.24		0.34
Average over 0.5 mSv		1.19		1.30		1.12		1.48
Number exceeding 0.5 mSv		90		77.59		61.59		95.58
Number exceeding 5 mSv		0		0.00		0.00		1.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine support worker**

<b>Annual doses</b>					
Parameters	A 0.242680	B 0.406210	C 0.027721	D 0.098939	
Sample size	350				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.87	0.88	0.78	0.99	
Average from 0.1 mSv up	1.14	1.13	1.00	1.27	
Number at or exceeding 0.1 mSv	268	267.43	252.45	283.42	
Number exceeding 1 mSv	102	110.55	94.56	127.53	
Number exceeding 2 mSv	57	49.59	36.60	62.58	
Number exceeding 5 mSv	0	1.62	0.00	4.62	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.324009	B 0.056252	C 0.013997	D 0.303602	
Sample size	581				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	2.11	2.11	1.80	2.46	
Average over 0.5 mSv	4.16	4.36	3.81	4.92	
Number exceeding 0.5 mSv	287	271.51	247.52	296.50	
Number exceeding 5 mSv	82	78.59	62.60	93.61	
Number exceeding 20 mSv	6	4.62	0.62	8.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine surface maintenance**

**Annual doses**

Parameters	A	0.289575	B	0.812052	C	0.059069	D	0.888811
Sample size		385						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.26		0.28		0.24		0.31
Average from 0.1 mSv up		0.41		0.40		0.36		0.45
Number at or exceeding 0.1 mSv		244		242.47		223.48		261.45
Number exceeding 1 mSv		16		18.61		10.62		27.61
Number exceeding 2 mSv		2		0.62		0.00		3.62
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00

**Doses accumulating over 5 year block starting 2001**

Parameters	A	0.126521	B	0.201492	C	0.054246	D	0.493905
Sample size		606						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.96		0.99		0.86		1.13
Average over 0.5 mSv		2.52		2.62		2.35		2.90
Number exceeding 0.5 mSv		218		207.54		183.55		231.53
Number exceeding 5 mSv		22		26.61		17.59		37.61
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine surface miner**

<b>Annual doses</b>					
Parameters	A	0.288868	B	0.418921	C
Sample size		73			D
Statistic		Sample value		Expectation value	
Average		0.82		0.83	0.60
Average from 0.1 mSv up		1.16		1.16	0.89
Number at or exceeding 0.1 mSv		52		51.45	43.48
Number exceeding 1 mSv		21		21.55	14.58
Number exceeding 2 mSv		6		8.60	3.61
Number exceeding 5 mSv		0		0.00	0.00
Number exceeding 20 mSv		0		0.00	0.00
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.257416	B	0.081503	C
Sample size		125			D
Statistic		Sample value		Expectation value	
Average		2.37		2.39	1.80
Average over 0.5 mSv		4.43		4.67	3.65
Number exceeding 0.5 mSv		66		61.50	51.52
Number exceeding 5 mSv		22		20.58	12.60
Number exceeding 20 mSv		2		0.62	0.00
Number exceeding 50 mSv		0		0.00	0.00
Number exceeding 100 mSv		0		0.00	0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine surface personnel**

<b>Annual doses</b>					
Parameters	A 0.128514	B 0.422354	C 0.046951	D 0.870067	
Sample size	280				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.32	0.35	0.27	0.43	
Average from 0.1 mSv up	0.71	0.70	0.56	0.86	
Number at or exceeding 0.1 mSv	127	126.51	111.53	142.50	
Number exceeding 1 mSv	26	29.60	19.61	39.59	
Number exceeding 2 mSv	15	9.62	4.62	16.61	
Number exceeding 5 mSv	0	0.00	0.00	0.62	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.316688	B 0.092475	C 0.000000	D 0.736858	
Sample size	527				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.84	0.84	0.69	1.01	
Average over 0.5 mSv	2.68	2.73	2.34	3.20	
Number exceeding 0.5 mSv	155	149.55	129.56	167.55	
Number exceeding 5 mSv	23	22.61	14.62	32.61	
Number exceeding 20 mSv	0	0.00	0.00	0.62	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine surface support worker**

<b>Annual doses</b>					
Parameters	A	0.282686	B	0.977464	C
Sample size		795			D
Statistic		Sample value		Expectation value	
Average		0.11		0.12	Lower 95% CL
Average from 0.1 mSv up		0.4		0.39	Upper 95% CL
Number at or exceeding 0.1 mSv		224		221.55	0.11
Number exceeding 1 mSv		11		11.62	0.14
Number exceeding 2 mSv		2		0.00	0.35
Number exceeding 5 mSv		0		0.00	20.62
Number exceeding 20 mSv		0		0.00	1.62
Number exceeding 50 mSv		0		0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.407507	B	0.143724	C
Sample size		1503			D
Statistic		Sample value		Expectation value	
Average		0.26		0.28	Lower 95% CL
Average over 0.5 mSv		1.46		1.53	Upper 95% CL
Number exceeding 0.5 mSv		214		204.59	0.24
Number exceeding 5 mSv		7		4.62	0.31
Number exceeding 20 mSv		0		0.00	1.37
Number exceeding 50 mSv		0		0.00	1.71
Number exceeding 100 mSv		0		0.00	231.59
					1.60
					10.62
					0.00
					0.00
					0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine underground maintenance**

<b>Annual doses</b>					
Parameters	A 0.086962	B 1.092270	C 0.032949	D -0.302673	
Sample size	190				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	0.59	0.60	0.52	0.68	
Average from 0.1 mSv up	0.76	0.76	0.67	0.85	
Number at or exceeding 0.1 mSv	147	146.43	135.42	157.42	
Number exceeding 1 mSv	42	41.57	30.58	53.55	
Number exceeding 2 mSv	5	4.62	0.62	8.61	
Number exceeding 5 mSv	0	0.00	0.00	0.00	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A 0.226964	B 0.158473	C 0.029752	D 0.145124	
Sample size	347				
Statistic	Sample value	Expectation value	Lower 95% CL	Upper 95% CL	
Average	1.61	1.61	1.37	1.86	
Average over 0.5 mSv	3.07	3.12	2.74	3.53	
Number exceeding 0.5 mSv	175	170.50	153.51	189.49	
Number exceeding 5 mSv	30	32.60	22.61	43.59	
Number exceeding 20 mSv	0	0.00	0.00	0.00	
Number exceeding 50 mSv	0	0.00	0.00	0.00	
Number exceeding 100 mSv	0	0.00	0.00	0.00	

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine underground miner**

<b>Annual doses</b>								
Parameters	A	0.000000	B	1.173060	C	0.003754	D	-0.620864
Sample size		125						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.58		0.68		0.56		0.79
Average from 0.1 mSv up		0.89		0.95		0.83		1.08
Number at or exceeding 0.1 mSv		82		88.45		78.47		97.43
Number exceeding 1 mSv		29		35.55		26.57		45.53
Number exceeding 2 mSv		5		4.62		0.62		9.61
Number exceeding 5 mSv		0		0.00		0.00		0.00
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.187328	B	0.051995	C	0.025226	D	-0.162900
Sample size		496						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		5.72		5.68		5.00		6.43
Average over 0.5 mSv		8.61		9.04		8.08		10.06
Number exceeding 0.5 mSv		328		309.47		288.48		329.46
Number exceeding 5 mSv		172		171.54		151.52		192.53
Number exceeding 20 mSv		37		36.61		25.61		49.60
Number exceeding 50 mSv		0		0.00		0.00		1.62
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine underground personnel**

<b>Annual doses</b>								
Parameters	A	0.350351	B	0.413447	C	0.000000	D	0.493888
Sample size		125						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		0.58		0.52		0.40		0.66
Average from 0.1 mSv up		0.89		0.83		0.66		1.02
Number at or exceeding 0.1 mSv		82		76.47		65.49		87.45
Number exceeding 1 mSv		29		22.58		13.60		30.56
Number exceeding 2 mSv		5		6.61		1.62		12.60
Number exceeding 5 mSv		0		0.00		0.00		0.62
Number exceeding 20 mSv		0		0.00		0.00		0.00
Number exceeding 50 mSv		0		0.00		0.00		0.00
<b>Doses accumulating over 5 year block starting 2001</b>								
Parameters	A	0.180125	B	0.110720	C	0.029370	D	0.300069
Sample size		219						
Statistic		Sample value		Expectation value		Lower 95% CL		Upper 95% CL
Average		1.81		1.81		1.43		2.23
Average over 0.5 mSv		3.91		4.04		3.34		4.82
Number exceeding 0.5 mSv		99		93.52		80.53		107.53
Number exceeding 5 mSv		38		26.59		18.58		37.58
Number exceeding 20 mSv		1		0.00		0.00		1.62
Number exceeding 50 mSv		0		0.00		0.00		0.00
Number exceeding 100 mSv		0		0.00		0.00		0.00

**Table 4 (Cont'd)**  
**Dose distribution by job category as of the end of 2005**

**Uranium mine visitor**

<b>Annual doses</b>					
Parameters	A	0.069323	B	0.754296	C
Sample size		53			D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average		0.02	0.01	0.00	0.06
Average from 0.1 mSv up		0.46	0.52	0.12	
Number at or exceeding 0.1 mSv		2	1.62	0.00	4.60
Number exceeding 1 mSv		0	0.00	0.00	0.62
Number exceeding 2 mSv		0	0.00	0.00	0.00
Number exceeding 5 mSv		0	0.00	0.00	0.00
Number exceeding 20 mSv		0	0.00	0.00	0.00
Number exceeding 50 mSv		0	0.00	0.00	0.00
<b>Doses accumulating over 5 year block starting 2001</b>					
Parameters	A	0.312911	B	0.131908	C
Sample size		381			D
Statistic		Sample value	Expectation value	Lower 95% CL	Upper 95% CL
Average		0.32	0.33	0.25	0.42
Average over 0.5 mSv		1.78	1.89	1.50	2.38
Number exceeding 0.5 mSv		60	54.59	41.60	67.58
Number exceeding 5 mSv		5	2.62	0.00	6.62
Number exceeding 20 mSv		0	0.00	0.00	0.00
Number exceeding 50 mSv		0	0.00	0.00	0.00
Number exceeding 100 mSv		0	0.00	0.00	0.00

## 2005 Final Analysis

**Table 5**  
**Collective dose in mSv by job category including tritium and radon progeny components**

Job Sector and Category	Number of Workers	Collective Dose (mSv)	% tritium	% radon progeny
<b>Administration</b>				
Administrator	656	74.51	0.89	0.00
Office staff	3600	201.61	0.18	0.00
Safety officer	548	74.83	0.17	0.00
<b>Industry and Research</b>				
Aircrew	10	4.48	0.00	0.00
Ground transportation	80	49.52	0.00	0.00
Industrial radiographer	2824	8098.01	0.00	0.00
Instructor (non-medical)	277	15.97	0.00	0.00
Instrument technician	2167	385.00	1.71	0.00
Laboratory technician (industrial)	3025	813.65	3.61	0.00
Nuclear fuel processor	964	1026.93	0.00	0.00
Scientist/Engineer (field)	1575	414.46	1.32	0.00
Scientist/Engineer (laboratory)	5185	365.45	0.00	0.00
Security	177	2.04	0.00	0.00
Tradesmen	204	32.01	0.00	0.00
Well logger	2476	1012.49	0.00	0.00
<b>Medicine</b>				
Chiropractor	1100	52.27	0.00	0.00
Dental assistant	14059	167.83	0.00	0.00
Dental hygienist	9619	68.41	0.00	0.00
Dental therapist/nurse	154	6.86	0.00	0.00
Dentist	7969	73.94	0.00	0.00
Gynaecologist	13	0.23	0.00	0.00
Laboratory technician (medical)	3934	437.80	0.00	0.00
Medical physicist	438	26.07	0.00	0.00
Medical radiation technologist	13612	1569.04	0.15	0.00
Nuclear medicine technologist	1818	2903.55	0.00	0.00
Nurse	7100	670.75	0.00	0.00
Physician	2942	677.37	0.00	0.00
Radiation therapist	1781	181.12	0.00	0.00
Radiologist (diagnostic)	2198	375.30	0.00	0.00
Radiologist (therapeutic)	279	29.53	0.00	0.00
Veterinarian	3314	98.78	0.00	0.00
Veterinary technician	3493	92.77	0.00	0.00
Ward aid/orderly	1070	61.90	0.00	0.00
<b>Nuclear Power</b>				
Reactor - administration	3955	681.95	27.13	0.00
Reactor - chemical and radiation control	668	1408.87	18.07	0.00
Reactor - construction	1183	2214.87	11.55	0.00
Reactor - control technician	268	273.30	15.16	0.00

**Table 5 (Cont'd)****Collective dose in mSv by job category including tritium and radon progeny components**

Job Sector and Category	Number of Workers	Collective Dose (mSv)	% tritium	% radon progeny
Reactor - electrical maintenance	1457	1463.31	24.14	0.00
Reactor - fuel handling	128	554.25	8.03	0.00
Reactor - general maintenance	1536	1794.28	17.09	0.00
Reactor - health physics	83	40.96	12.35	0.00
Reactor - industrial radiographer	67	226.89	11.88	0.00
Reactor - mechanical maintenance	1767	3950.86	14.44	0.00
Reactor - operations	2437	2888.91	30.43	0.00
Reactor - scientific/professional	2564	1107.64	13.65	0.00
Reactor - training	89	29.00	10.41	0.00
Reactor - visitor	6487	6037.19	13.03	0.00
<b>Particle Accelerators</b>				
Accelerators - Administration	39	5.60	0.00	0.00
Accelerators - Control technicians	29	11.10	0.00	0.00
Accelerators - Designers	17	10.00	0.00	0.00
Accelerators - General Maintenance	19	19.10	0.00	0.00
Accelerators - Machinists	28	7.80	0.00	0.00
Accelerators - Mechanical technicians	78	82.70	0.00	0.00
Accelerators - Operations	42	82.30	0.00	0.00
Accelerators - Scientific/professional	322	83.70	0.00	0.00
Accelerators - Visitors	98	7.00	0.00	0.00
<b>Uranium Mining</b>				
Uranium mine electrician	1	0.05	0.00	100.00
Uranium mine mill maintenance	310	209.85	0.00	44.10
Uranium mine mill worker	285	285.25	0.00	54.60
Uranium mine nurse	23	0.90	0.00	66.67
Uranium mine office staff	286	28.75	0.00	54.09
Uranium mine support worker	350	309.84	0.00	51.25
Uranium mine surface maintenance	385	102.20	0.00	54.40
Uranium mine surface miner	73	60.50	0.00	20.99
Uranium mine surface personnel	280	91.30	0.00	63.09
Uranium mine surface support worker	795	93.89	0.00	51.44
Uranium mine underground maintenance	190	114.53	0.00	60.46
Uranium mine underground miner	258	447.12	0.00	42.70
Uranium mine underground personnel	125	75.00	0.00	56.93
Uranium mine visitor	53	1.05	0.00	14.29
<b>Miscellaneous/Unknown</b>				
Miscellaneous/Unknown	27915	16139.94	2.10	0.00
<b>Total</b>				
Total	147099	61006.23	6.96	1.48

## 2005 Final Analysis

**Table 6**  
**10 year trend of worker counts (top) and average annual doses in mSv (bottom)**  
**by job category for all of Canada**

Job Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
<b>Administration</b>										
Administrator	427	578	576	573	579	612	629	627	646	656
	0.13	0.15	0.15	0.13	0.15	0.14	0.16	0.13	0.15	0.11
Office staff	4001	3862	3836	3920	3993	4026	3921	3933	3816	3600
	0.08	0.07	0.06	0.05	0.06	0.05	0.05	0.05	0.10	0.06
Safety officer	148	143	134	153	186	206	221	295	490	548
	0.18	0.19	0.21	0.25	0.15	0.16	0.21	0.20	0.12	0.14
<b>Industry and Research</b>										
Aircrew	2	3	3	9	10	12	13	11	16	10
	5.05	0.70	0.77	0.27	0.49	0.69	0.49	0.63	0.46	0.45
Ground transportation	6	6	24	19	41	189	212	82	83	80
	0.63	0.73	0.14	0.34	0.48	0.23	0.32	0.72	0.58	0.62
Industrial radiographer	2290	2412	2561	2630	2845	2894	2896	2710	2739	2824
	3.44	3.45	2.98	2.87	2.60	3.01	2.44	2.77	2.71	2.87
Instructor (non-medical)	165	167	183	195	199	207	209	216	245	277
	0.05	0.04	0.03	0.03	0.02	0.03	0.16	0.16	0.07	0.06
Instrument technician	1944	1979	1919	2206	2367	2376	2319	2235	2224	2167
	0.21	0.14	0.31	0.13	0.15	0.44	0.18	0.27	0.20	0.18
Laboratory technician (industrial)	3578	3662	3784	3901	4022	4454	4204	3625	3357	3025
	0.20	0.19	0.18	0.18	0.17	0.22	0.20	0.26	0.23	0.27
Nuclear fuel processor	188	180	178	571	572	638	706	738	863	964
	2.79	2.36	1.99	1.46	1.25	1.31	1.65	1.45	1.20	1.07
Scientist/Engineer (field)	1469	1494	1364	1266	1275	1289	1299	1241	1361	1575
	0.39	0.31	0.29	0.35	0.35	0.26	0.24	0.35	0.26	0.26
Scientist/Engineer (laboratory)	4785	4817	5125	5617	6120	6558	6757	6032	5590	5185
	0.04	0.06	0.05	0.04	0.04	0.13	0.07	0.06	0.06	0.07
Security	2	3	3	4	3	4	10	130	193	177
	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.03	0.03	0.01
Tradesmen	59	62	71	108	123	142	161	192	239	204
	0.08	0.24	0.24	0.19	0.30	0.11	0.12	0.17	0.11	0.16
Well logger	912	917	976	984	1231	1528	1573	1970	2408	2476
	0.59	0.53	0.45	0.45	0.67	0.42	0.39	0.43	0.36	0.41
<b>Medicine</b>										
Chiropractor	1062	1044	991	1020	1056	1066	1053	1099	1116	1100
	0.05	0.03	0.06	0.02	0.02	0.04	0.03	0.03	0.04	0.05
Dental assistant	7807	8904	9451	10227	10983	11643	11955	13399	14037	14059
	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Dental hygienist	6806	7008	7130	7534	7900	8267	8513	9271	9537	9619
	0.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01

**Table 6 (Cont'd)**

**10 year trend of worker counts (top) and average annual doses in mSv (bottom)  
by job category for all of Canada**

Job Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Dental therapist/nurse	56 0.00	94 0.02	100 0.01	99 0.02	110 0.01	119 0.01	130 0.04	137 0.04	151 0.05	154 0.04
Dentist	6785 0.01	6954 0.01	7014 0.01	7189 0.01	7287 0.01	7444 0.01	7451 0.04	7836 0.02	8002 0.02	7969 0.01
Gynaecologist	32 0.01	22 0.02	21 0.00	18 0.01	17 0.00	14 0.01	11 0.04	11 0.03	10 0.02	13 0.02
Laboratory technician (medical)	3382 0.05	3196 0.05	3247 0.08	3400 0.09	3592 0.09	3738 0.08	3988 0.12	4387 0.13	4283 0.10	3934 0.11
Medical physicist	261 0.11	261 0.06	280 0.23	326 0.03	346 0.08	371 0.20	385 0.07	411 0.09	430 0.06	438 0.06
Medical radiation technologist	11893 0.08	11614 0.08	11541 0.09	11952 0.06	12321 0.07	12722 0.09	13062 0.11	13429 0.12	13450 0.11	13612 0.12
Nuclear medicine technologist	1354 1.26	1334 1.35	1326 1.47	1445 1.39	1526 1.44	1625 1.51	1657 1.70	1714 1.71	1780 1.97	1818 1.60
Nurse	4649 0.06	4448 0.07	4450 0.12	4794 0.08	5066 0.10	5695 0.10	5963 0.12	6188 0.11	6416 0.10	7100 0.09
Physician	2076 0.14	1992 0.14	2002 0.24	2081 0.16	2139 0.18	2350 0.17	2446 0.23	2592 0.25	2727 0.22	2942 0.23
Radiation therapist	988 0.18	994 0.22	1044 0.11	1338 0.15	1514 0.11	1656 0.14	1741 0.18	1801 0.15	1793 0.11	1781 0.10
Radiologist (diagnostic)	1730 0.14	1741 0.14	1737 0.16	1780 0.17	1869 0.16	1986 0.17	2071 0.18	2128 0.24	2201 0.19	2198 0.17
Radiologist (therapeutic)	168 0.05	160 0.08	158 0.13	202 0.05	214 0.06	250 0.13	259 0.12	270 0.13	285 0.10	279 0.11
Veterinarian	4051 0.05	4217 0.03	4215 0.06	4069 0.03	3958 0.02	3863 0.03	3646 0.06	3581 0.05	3465 0.04	3314 0.03
Veterinary technician	122 0.05	191 0.05	369 0.07	998 0.02	1674 0.03	2057 0.03	2230 0.04	2741 0.04	3217 0.04	3493 0.03
Ward aid/orderly	1778 0.07	1666 0.05	1539 0.12	1573 0.06	1500 0.10	1434 0.06	1507 0.07	1388 0.08	1258 0.08	1070 0.06
<b>Nuclear Power</b>										
Reactor - administration	4083 0.21	5163 0.25	5079 0.21	4507 0.24	4378 0.18	4679 0.19	4512 0.16	4381 0.21	3949 0.15	3955 0.17
Reactor - chemical and radiation control	388 1.91	374 1.79	368 1.40	360 1.57	349 1.52	422 1.46	470 1.71	523 1.96	568 2.11	668 2.11
Reactor - construction	1344 1.00	1359 1.60	1155 1.59	1602 1.82	1814 1.56	2085 1.65	1841 1.64	1861 1.19	1270 1.01	1183 1.87
Reactor - control technician	111 1.33	111 1.30	118 1.48	135 1.20	170 0.82	177 0.82	189 1.34	183 2.22	153 0.15	268 1.02
Reactor - electrical maintenance	1015 1.18	978 1.13	956 0.95	987 1.04	1064 0.85	1331 0.99	1441 0.86	1410 1.10	1393 0.67	1457 1.00

**Table 6 (Cont'd)**  
**10 year trend of worker counts (top) and average annual doses in mSv (bottom)**  
**by job category for all of Canada**

Job Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Reactor - fuel handling	44 3.84	39 4.76	55 4.73	45 6.31	52 5.64	47 3.17	51 3.99	127 3.34	113 1.98	128 4.33
Reactor - general maintenance	1298 0.87	1286 0.79	1147 0.90	1299 1.03	1353 0.86	1502 1.03	1518 0.77	1394 1.12	1414 0.75	1536 1.17
Reactor - health physics	84 0.54	68 0.36	61 0.48	79 0.48	84 0.40	63 0.47	63 0.69	54 0.84	71 0.43	83 0.49
Reactor - industrial radiographer	26 2.24	11 1.30	9 1.13	22 2.12	58 2.40	46 1.59	68 2.88	94 2.79	72 2.25	67 3.39
Reactor - mechanical maintenance	1429 2.31	1315 2.55	1229 2.12	1293 2.52	1286 2.10	1558 2.17	1736 1.84	1632 2.32	1452 1.56	1767 2.24
Reactor - operations	1864 1.59	1866 1.61	1914 1.24	1934 1.16	1993 1.12	2171 1.14	2191 0.97	2312 1.14	2319 1.02	2437 1.19
Reactor - scientific/professional	1388 0.55	1572 0.73	1440 0.53	1558 0.54	1989 0.48	2467 0.45	2519 0.54	2533 0.55	2510 0.42	2564 0.43
Reactor - training	55 0.28	50 0.31	58 0.60	93 0.83	93 0.43	64 0.36	58 0.56	60 0.67	61 0.54	89 0.27
Reactor - visitor	339 0.92	529 0.41	725 0.54	2667 0.40	3442 0.17	5350 0.57	6684 0.67	6630 0.54	6348 0.81	6487 0.93
<b>Particle Accelerators</b>										
Accelerators - Administration	24 0.03	25 0.02	26 0.01	27 0.00	27 0.07	27 0.23	27 0.10	38 1.16	37 0.12	39 0.14
Accelerators - Control technicians	15 0.07	15 0.01	15 0.01	15 0.07	15 0.10	15 0.33	15 0.11	25 1.25	29 0.26	29 0.38
Accelerators - Designers	13 1.05	13 1.18	13 0.65	14 1.03	14 0.96	14 1.36	14 0.92	18 1.92	18 0.86	17 0.59
Accelerators - General Maintenance	10 1.16	10 1.13	11 3.78	11 0.98	11 0.71	11 1.30	11 1.20	18 2.21	20 0.95	19 1.01
Accelerators - Machinists	16 0.06	16 0.19	19 0.30	19 0.41	19 0.34	19 0.62	19 0.32	25 1.14	27 0.26	28 0.28
Accelerators - Mechanical technicians	44 1.94	46 1.80	48 0.55	50 0.80	51 0.89	51 1.03	51 1.11	69 2.61	72 1.42	78 1.06
Accelerators - Operations	15 1.43	16 2.05	18 0.97	18 0.62	18 0.98	18 1.77	18 1.81	34 2.74	38 1.53	42 1.96
Accelerators - Scientific/professional	178 0.34	183 0.20	195 0.18	218 0.20	225 0.24	233 0.47	239 0.30	303 1.24	317 0.25	322 0.26
Accelerators - Visitors	9 0.03	9 0.04	8 0.01	15 0.01	15 0.07	14 0.26	15 0.12	56 1.04	68 0.07	98 0.07
<b>Uranium Mining</b>										
Uranium mine electrician					8 0.18	16 0.27	8 0.15	4 0.00		1 0.05

**Table 6 (Cont'd)**  
**10 year trend of worker counts (top) and average annual doses in mSv (bottom)**  
**by job category for all of Canada**

Job Category	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Uranium mine mill maintenance	163 1.95	169 2.71	186 2.13	207 1.36	185 1.68	162 1.66	183 1.24	209 1.01	309 0.85	310 0.68
Uranium mine mill worker	245 2.14	256 2.62	272 2.05	306 1.47	273 2.03	258 2.10	249 1.66	260 1.35	274 1.59	285 1.00
Uranium mine nurse	8 0.09	10 0.16	18 0.24	24 0.06	17 0.11	14 0.11	11 0.11	13 0.21	14 0.17	23 0.04
Uranium mine office staff	115 0.34	140 0.23	177 0.19	196 0.24	179 0.18	170 0.16	149 0.17	145 0.15	223 0.16	286 0.10
Uranium mine support worker	154 2.73	153 3.51	296 1.79	467 1.29	327 1.19	176 1.11	143 1.37	144 1.77	230 1.21	350 0.89
Uranium mine surface maintenance	269 0.78	224 0.51	222 0.57	287 0.51	207 0.61	190 0.81	203 0.49	231 0.47	301 0.42	385 0.27
Uranium mine surface miner	217 0.95	245 0.93	116 0.73	108 0.59	88 1.34	47 2.15	46 1.53	42 1.19	36 0.45	73 0.83
Uranium mine surface personnel	80 0.39	123 0.31	164 0.52	222 0.41	187 0.64	177 0.61	173 0.41	182 0.52	232 0.34	280 0.33
Uranium mine surface support worker	345 0.57	352 0.65	357 0.60	302 0.30	296 0.30	335 0.28	331 0.19	369 0.17	568 0.15	795 0.12
Uranium mine underground maintenance	116 2.32	103 1.49	137 1.13	204 0.92	195 0.70	115 0.46	128 0.74	158 1.01	142 1.00	190 0.60
Uranium mine underground miner	494 6.51	353 6.05	361 3.27	344 3.13	284 2.57	161 2.29	196 2.65	273 2.74	206 3.71	258 1.73
Uranium mine underground personnel	347 0.64	340 0.92	213 0.92	150 1.08	110 0.89	72 0.49	82 0.77	97 1.07	94 1.31	125 0.60
Uranium mine visitor	238 0.15	249 0.13	306 0.06	399 0.10	185 0.21	132 0.41	151 0.34	120 0.14	10 0.05	53 0.02
<b>Miscellaneous/Unknown</b>										
Miscellaneous/Unknown	32902 0.21	31889 0.21	31569 0.22	30810 0.17	28561 0.17	25940 0.15	24938 0.14	25112 0.15	24997 0.15	27915 0.58
<b>Total</b>	123200 0.34	124273 0.34	124477 0.31	127740 0.31	131465 0.28	136132 0.33	139181 0.31	142594 0.33	143360 0.30	147099 0.41

# Appendix

## The new three component normal (TCN) distribution

The appendix explains how the data can be fitted to a statistical distribution, so that: (1) the sample of doses can be described by 5 quantities (the parameters of the distribution and sample size); and, (2) from these quantities, any dose statistic can be estimated, including any statistic not listed in this report, such as the 9-th decile.

Statistical distributions are defined by a probability density function, which is interpreted as follows:

The probability that a dose value lies between a and b equals

$$\int_a^b f(x)dx ,$$

where  $f$  represents the probability density function and  $x$  assumes possible values of a random variable  $X$  which in our case represents the occupational dose.

The probability density function also contains a number of parameters, which determine the shape of the function. The distribution is defined by the mathematical formula for the density function, with the parameters as yet unspecified. Only when the parameters have been specified is the statistical model for the occupational dose defined. Parameters are adjusted to fit the data.

The TCN distribution has been designed to provide good fits especially to low dose distributions. Its probability density function is defined as:

$$f(x;A,B,C,D) =$$

$$\phi(A*\log(x) + B*x - C/x + D) *$$

$$(A/x + B + C/x^2) =$$

$$\phi(z) * (dz/dx)$$

where  $\phi(t)$  denotes the standard normal probability density function  $\exp(-t^2/2)/\sqrt{2\pi}$ , and  $A, B, C$  and  $D$  are parameters of the distribution. In other words, the random variable:

$$Z = A*\log(X) + B*X - C/X + D$$

follows a standard normal distribution.

The parameters  $A, B$  and  $C$  are restricted to values  $>=0$ . If  $A=0$  then  $B>0$  and  $C>0$ . There are no restrictions on the parameter  $D$ .

Special cases of this distribution arise when  $B$  and  $C$  are fixed to 0, and when just  $C$  is fixed to 0, while  $A>0$ ; they are reparametrized versions of respectively the lognormal and hybrid lognormal distributions<sup>(4,5)</sup>, which were used in early reports.

If the parameters for the probability density function  $f$  are known, one can estimate any dose statistic. For example, the mean dose is estimated as:

$$\int_0^\infty xf(x)dx$$

(since the dose values  $x$  are between 0 and infinity).

The variance of the dose is estimated as:

$$\int_0^\infty (x-\text{mean})^2f(x)dx$$

and the standard deviation as the square root thereof.

The probability that a dose exceeds, for example, 50 mSv, is estimated as:

$$\int_{50}^\infty f(x)dx$$

The 95-th percentile is estimated as that dose value  $v$  for which:

$$\int_v^{\infty} f(x)dx = 95/100.$$

The fraction of the collective dose due to doses exceeding 15 mSv is estimated as:

$$\frac{\int_{15}^{\infty} xf(x)dx}{\int_0^{\infty} xf(x)dx}$$

$$\frac{\int_0^{\infty} xf(x)dx}{\int_0^{\infty} f(x)dx}$$

The parameters are determined from the actual dose data. They are chosen to give the best "fit" with the sample of observed data, for which purpose there exists a variety of methods. The parameters in Table 4 have been estimated with a form of the Maximum Likelihood method. With this method, dose statistics can be estimated with the formulas given above, with the tabulated parameter values substituted for A, B, C and D. Instead of single dose values, small dose intervals and their frequencies (i.e. number of doses within the intervals) are used to determine the parameters. Doses recorded as 0 are assumed to have small positive values within the lowest dose interval. The resulting models will be valid for complete sets of workers' doses, not just doses recorded as positive as in early reports.